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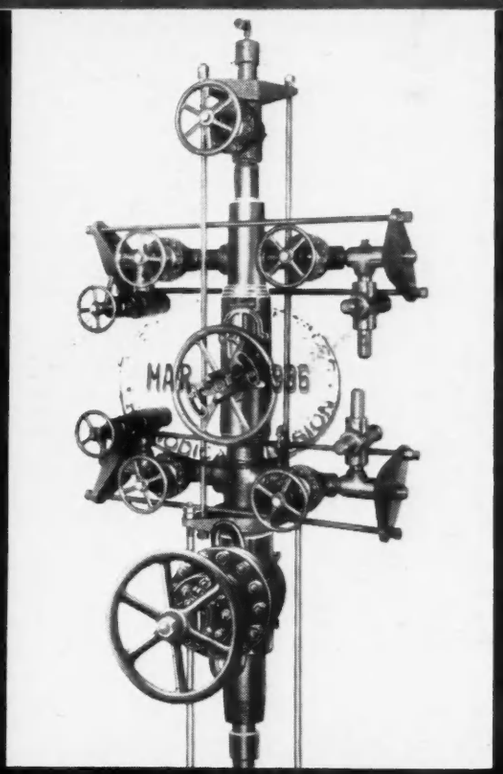
The OIL WEEKLY

OIL and GAS ENGINEERING

FOR OIL AND GAS PRODUCERS AND PIPE LINE MEN

THE WEEK'S NEWS INTERPRETED



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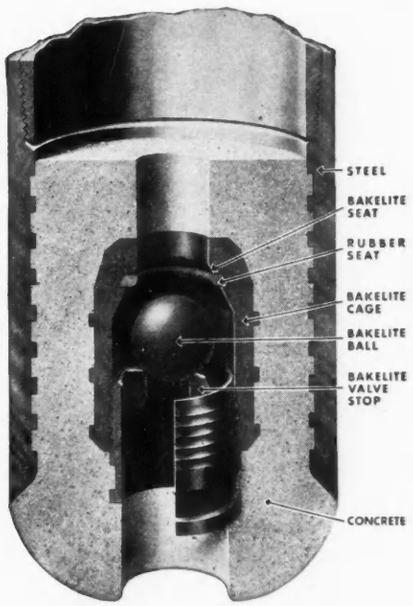
WITH A BAKER CEMENT FLOAT SHOE ON THE END OF THE STRING, AND A MIND FREE FROM WORRY?



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for guiding—floating—cementing casing

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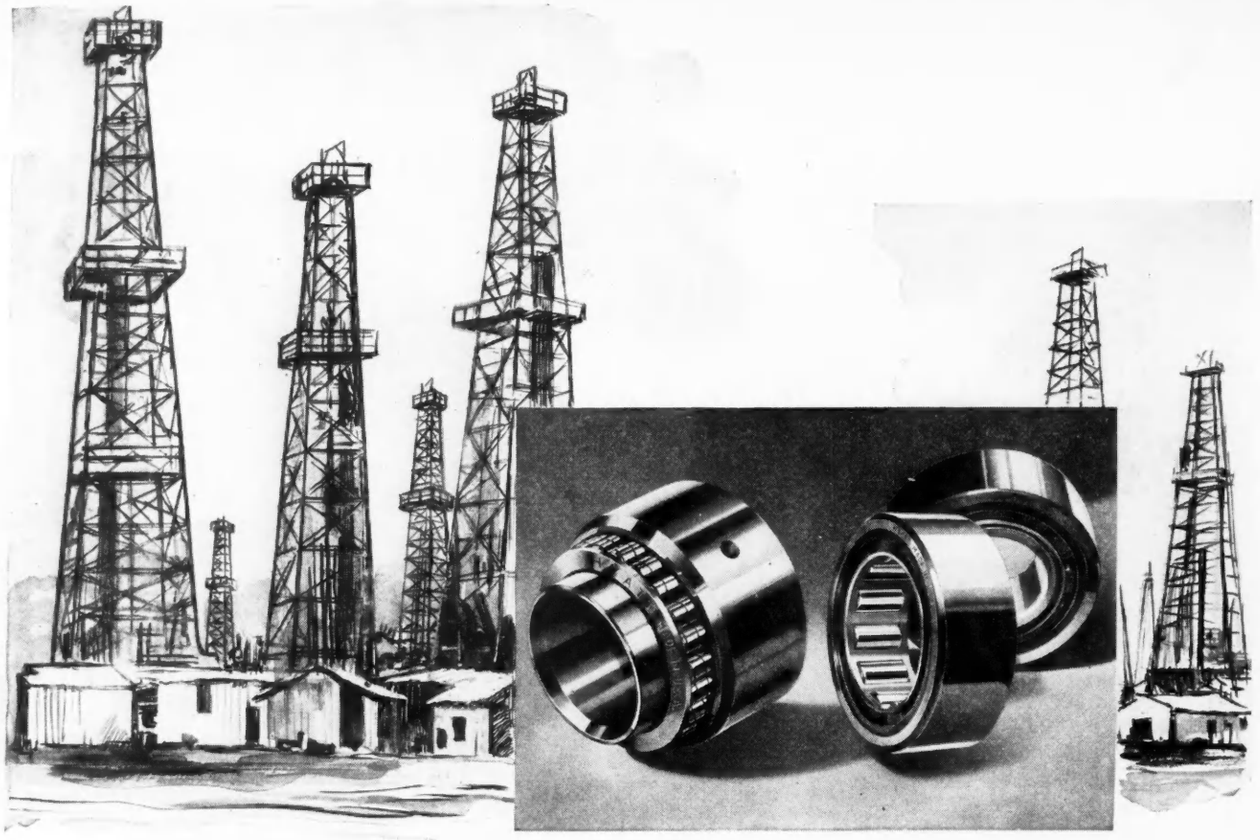

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THE OIL WEEKLY

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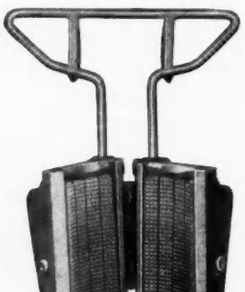

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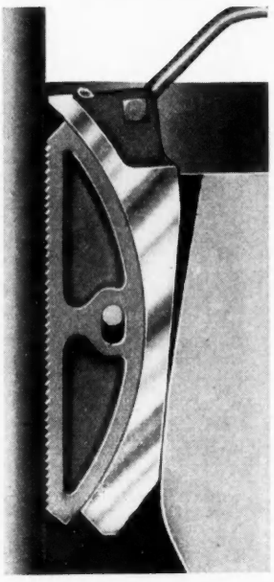

The cross section at right shows the principle on which these revolutionary slips operate. The backs of the liners are formed with a radius which allows them to rock in the body. Note that, even though the taper of the worn master bushing does not coincide with that of the back of the slip, the ENTIRE LENGTH of the face of the liner is gripping the drill pipe. Thus, the pressure is transmitted from a large area of the drill pipe through the slip to the master bushing. No chance for bottlenecking the drill pipe here.

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THE OIL WEEKLY

FOR OIL AND GAS PRODUCERS
AND PIPE LINE MEN

ENGINEERING NEWS STATISTICS

WARREN L. BAKER, Editor

. . . this Week

THE Interstate Oil Compact Commission adopted by-laws to govern the conduct of the group at its meeting in Oklahoma City last week. Votes will be by states, whose value is to be based on their production. It was also agreed that four committees would be appointed to make a thorough study of conditions and particularly proration problems. **Page 8.**

GAUGES given 25 of the East Texas key wells by the Railroad Commission have shown a surprisingly small decline since last year. The average thus far has been a drop of seven barrels per well. Meanwhile, bottomhole pressure conditions in the field were improved. A loss of but one pound was registered during the past month compared with five pounds the previous month. **Page 9.**

MEMBERS of the oil industry last week were invited to participate in round table discussions of President Roosevelt's new recovery program, which involves another attempt to codify industry. The discussions are to be held preliminary to an actual attempt at drafting a business control program. **Page 8.**

EXCEEDINGLY encouraging is the way the Mid-Continent refined market is holding its ground at near peak prices for the year. Only very minor fluctuations have occurred in the market during the past month, despite depressed conditions in California. Contributing to the healthy posting has been high consumptive demand and fairly close production output control. **Page 45.**

TWO natural gas companies have been granted permanent injunctions against enforcement of the Texas Railroad Commission gas proration orders in the Texas Panhandle. The court said that the order was invalid because it was not based on prevention of physical waste but rather sought to divide the market. The court will hold a hearing on October 28 to consider the validity of the state's gas law, under which the proration order was issued. **Page 12.**

THE Texas investigating committee will continue its activities, an additional fund of $10,000 having been appropriated by the House of Representatives. This is a complete change in the temper of representatives. Hearings now are scheduled to terminate by April 1, 1936. The committee is said to have obtained much data on the hot oil situation in the state. **Page 11.**

The Oil Man's Calendar

OCTOBER

16-17 *American Association of Petroleum Geologists, Mid Year Meeting, Mexico City, Mexico.*

18 *Kansas-Oklahoma Division, Mid-Continent Oil & Gas Association, Tulsa, Oklahoma.*

21 *Louisiana-Arkansas Division, Mid-Continent Oil & Gas Association, Shreveport, Louisiana*

NOVEMBER

4-5 *Independent Petroleum Association of America, Annual Meeting, Dallas, Texas.*

11-14 *American Petroleum Institute, Annual Meeting, Biltmore Hotel, Los Angeles.*
California Natural Gasoline Association, Los Angeles.

DECEMBER

10 *Mid-Continent Oil & Gas Association, Tulsa, Oklahoma, (Date tentative).*

MARCH, 1936

19-21 *American Association of Petroleum Geologists, Tulsa, Oklahoma.*

APRIL

16-17 *National Petroleum Association, Cleveland, Ohio.*

CALIFORNIA production continues to run approximately 50,000 barrels daily ahead of the figure believed to represent its demand. Apparently little progress is being made in getting operators together on any kind of an agreement. Meanwhile it is claimed that many of the fields are being sadly dissipated, and that if the condition continues few fields will need to be prorated at the end of 12 months. **Page 9.**

ONE of the latest repressuring projects in Pennsylvania is of interest because of several practices being employed. Work includes rehabilitation of many of the old producing wells so that they will be physically fit for repressuring operations, others are being plugged and new wells drilled. Several of the wells produce from two horizons, and provisions are made so that both zones may be repressured. This is accomplished by running two strings of tubing and using packers to pack off. Another feature is the generating of electricity for all power purposes. The engine in the generating plant also drives the compressors used in the repressuring work. **Page 19.**

GEOPHYSICAL work in the Gulf Coast is a very interesting operation. In recent years the efficiency of such activity has been greatly improved by new methods. It now is the practice in many instances to work an area with several geophysical instruments and to correlate the results. **Page 22.**

SOME interesting drilling experiences have been encountered in drilling in Borneo. Because of the great distance from any source of equipment supply, it has been necessary that drillers combat these difficulties in unusual manners. The way several problems were overcome is discussed in an interesting article. **Page 30.**

Draft Compact Plan

COMMISSION ADOPTS BY-LAWS AND APPOINT COMMITTEES

OKLAHOMA CITY.

THE Interstate Oil Compact Commission at a called meeting October 11 ordered Governor E. W. Marland of Oklahoma, its chairman, to name four committees that will make a thorough study of oil conservation, coordination, consumption and imports and exports. By-laws of the commissions were adopted to govern the conduct of the group, and it was unanimously adopted, and provides that the vote on questions coming before the commission, shall be by affirmative vote of a majority of the state representatives, with concurring approval by a majority of the states in interest. The rating of the states is to be based on decimal percentage of average daily production during the last half-year in proportion to the average daily production of all compacting states for the same period, figures of U. S. Bureau of Mines to be used. Officers will be named annually with those now in charge to serve to next September. Meetings will be quarterly, with the next one in Oklahoma City in December. By resolution the commission decided to urge the regulatory bodies of compacting states to consider the market demand figures of the Bureau of Mines in figuring state allowables. Representatives of states not yet members of the compact will be invited as observers to participate in discussions at all meetings.

E. O. Thompson, chairman of the Texas Commission, with Jack Blalock, attorney of Houston, represented Governor Allred; H. C. Dow came for Governor Tingley of New Mexico; William Bell for Governor Horner of Illinois; Homer Hoch for Governor Landon of Kansas, and H. C. Bretschneider for Governor Johnson of Colorado. Several observers were also present.

Before the meeting began Thompson announced a reduction of Texas oil allowables by some 80,000 barrels will necessitate a reduction in the number of proration department employes in Texas. "Our funds come from a three sixteenths of a cent tax on oil for regulatory purposes," Thompson said. "When we cut the allowable, that cuts the revenue, therefore we have to reduce in the amount of the difference in revenue." He said the employes received an average of $125 a month.

NEW TENDER HEAD

James A. Frear is made federal tender chairman

WASHINGTON, D. C.

APPOINTMENT of James A. Frear, former member of Congress from Wisconsin, as chairman of the Federal Tender Board to succeed Norman Meyers, who recently resigned to devote his entire time to his duties as executive secretary and member of the Petroleum Administrative Board, was announced October 10 by Under-Secretary of the Interior Charles West.

At the same time, the appointment of C. L. Waterbury, formerly an oil operator in Texas and Oklahoma and more recently a special agent of the Division of Investigations in charge of oil enforcement in the New York area, as a member of the board, was announced. He succeedd Malcolm S. McCorquodale of Houston, who has resigned.

Pending the appointment of a permanent head of the federal tender agency, which conducts investigations of applications for oil tenders, Thomas G. Kelliher, who has been stationed in East Texas as a government representative, has been designated acting director.

Chairman Frear, said by the department to have made extensive private studies of foreign oil fields, was a member of Congress for 22 years, during 15 of which he was a member of the powerful House Ways and Means Committee. A Republican, he was defeated for reelection in 1934 by Merlin Hull, Progressive.

New Control Try

MEMBERS OF INDUSTRY INVITED TO PARTICIPATE IN DISCUSSIONS

WASHINGTON, D. C.

MEMBERS of the oil industry last week were invited to participate in discussions in Washington designed to lead to the development of new recovery legislation.

More than 6000 letters have been dispatched by Major George L. Berry, coordinator for industrial cooperation, to the individuals, representing both management and labor, who participated in the negotiations or hearings on the more than 500 codes which were in effect last May when the Supreme Court declared them invalid.

The recipients of these letters are being asked whether they would attend "round table discussions" of President Roosevelt's new recovery program, which involves another attempt to codify industry.

In an Executive Order appointing him as coordinator, Major Berry was instructed by the President to hold conferences "of representatives of industry, labor and consumers for consideration of the best means of accelerating industrial recovery, eliminating unemployment and maintaining business and labor standards."

At the same time, the President issued an order providing the procedure to be followed in the negotiation of voluntary codes and trade agreements, requiring that the former shall contain labor provisions similar to those of Section 7(a) of the original recovery act, providing for minimum wages and maximum hours, outlawing child labor and guaranteeing the right of employes to bargain collectively. Approval of these provisions, necessary prior to consummation of the codes in which they are carried, was vested in the NRA.

The sending out of letters to all who attended the various code hearings is Coordinator Berry's first step to carry the President's instructions into effect.

All representatives of management and labor who evince a willingness to cooperate, he wrote, would be invited to Washington "for the purpose of conferring upon the advisability of developing a permanent structure contemplating the furtherance of prosperity and stability in our industrial life."

Success of President Roosevelt's plan to revive industrial control to such extent as remains possible under the Supreme Court decision hinges upon acceptance of his program by industry. So far, the reaction to the plan, outlined shortly before adjournment of Congress in letters to Senator Harrison of Mississippi and Representative Doughton of North Carolina, chairman, respectively of the Senate finance and House ways and means committees, asking them to call their committees together in December to develop new legislation, has been admittedly disappointing.

Indications so far are that neither industry nor labor is responsive to the suggestion for further government control. The attitude of the former is displayed in the refusal to ask for voluntary codes, although a score of industries have applied for trade agreements, which involve no labor regulation. Organized labor, meeting in annual convention this week at Atlantic City, has adopted the position that little of importance can be gained by labor provisions in codes unless they go further than the Wagner labor relations act passed by Congress last session.

Coordinator Berry, however, has expressed confidence that both industry and labor are still interested in the "self government" program of the former codes, and is taking steps to determine whether this interest is sufficiently widespread to give support to his plans.

"This letter," he wrote, in addressing those who participated in the code meetings, "is being addressed to you to inquire if you or your associates, or someone designated by you, would be willing to engage in these round table discussions so that we might have the benefit of your experience and counsel."

Small Decline

NEW GAUGES IN EAST TEXAS DROP SEVEN BARRELS A WELL

TYLER.

HOURLY flow of 25 key wells in the East Texas field given new potential gauges by the Texas Railroad Commission shows a decline of only seven barrels per well. These wells averaged 849.14 barrels per hour on the new gauges as compared to an average hourly rate of 856.14 barrels on previous tests made last year. Losses ranging from 104 to a fraction of one barrel were sustained by 16 of the key wells, while the other nine scored gains varying from less than one barrel to 76 barrels in comparatively hourly rate.

Failure of the key wells to average a greater decline in crude yield provided a distinct surprise since about one year has elapsed since previous official gauges were taken, and during this period actual production has been averaging about 15,000,000 barrels monthly. Owners of key wells are notified several days in advance of tests to make ready, and required equipment consists of two four-inch lines extending from casing and also an outlet to flow through open tubing.

Higher degree of efficiency has been attained by operators in connecting up key wells so as to register the maximum flow during the two-hour gauge used as a basis in fixing the hourly rating. Back pressure on flow lines is reduced to a minimum to enable wells to make their best yield.

Ability of the wells to maintain their high yield over a period of hours must remain a matter of speculation, as only a few of the properties have adequate lease storage to permit an extended gauge of the large producers.

The rated hourly flow of each key well is used as the basis for fixing the daily proration quota of all wells in its respective zone as allocated by the Railroad Commission's engineering department. At present, wells are permitted to produce 2 8/10 percent of their rated hourly flow, but if a substantial decline in potential flow is recorded when gauges are completed the commission will likely restore the three percent factor. Key wells and those in their respective zones are classed as marginal producers and assigned a flat allowable of 20 barrels daily, or the same given strippers, unless the rated potential flow exceeds 714 barrels hourly. However, discretion has been used in signalling out wells to be used for fixing potential rating, and only a few in the accompanying tabulation fall in the marginal class.

Comparative gauges reveals that a number of the key wells varied less than one percent. Nearest approach to identical performance was recorded by Stanolind Oil & Gas Company's C. J. Dollahite 1, D. Sanchez Survey, Gregg County, which flowed 735.24 barrels hourly on July 28 last year, and on October 5 produced 735.18 barrels, or a net loss of 6/100 of one percent. On the recent gauge the tubing pressure was lowered from normal level of 180 pounds to 18 pounds during the test, then built up to 175 pounds at the conclusion of the period. Casing pressure was pulled down from 220 to 25 pounds, then registered 180 pounds when shut in.

Comparative Hourly Production Performance of Key Wells in the East Texas Field

Company, Well and Survey—	Date Gauged	Hourly Flow	Date Gauged	Hourly Flow	Bbls. Loss	Bbls. Gain
GREGG COUNTY—						
Atlantic O. P. Co.'s Judge 60, F. W. Johnson	-34	985.00	10- 4-35	988.79	....	3.79
Gulf Prod. Co., T. Anderson 4, J. Ruddle	9- -34	781.47	10- 8-35	781.40	.07	...
Wm. Clayton 7, L. B. Outlaw	9-15-34	821.60	10- 7-35	781.40	36.96	...
Humbles's A. Carter 9, D. Ferguson	7-18-34	900.79	10- 8-35	944.94	....	44.15
Sinclair Prairie's A. A. King 32-A, W. P. Warriner	-34	804.14	10- 5-35	798.93	5.21	...
Stanolind's O. J. Albright 8, W. H. Hart	-34	992.00	10- 1-35	980.00	12.00	...
C. J. Dollahite 1, D. Sanchez	7-28-34	735.24	10- 5-35	735.18	.06	...
M. LeMaire 3, H. Hathaway	8-15-34	861.77	10- 8-35	875.40	...	13.63
Superior Oil Co.'s L. C. Ingram 1, W. E. Pasteur	7-13-34	931.00	9-26-35	1003.00	...	72.00
Tide Water's M. G. Barton 24, S. R. Hollingworth	5- 9-34	925.00	9-27-35	913.00	12.00	...
Weaver-Crim Corp's Ben Laird 11, W. P. Chism		.....	10- 8-35	991.92	...	...
RUSK COUNTY—						
Bay Oil Corp's B. B. Peterson 6, J. S. Carruthers	7-10-34	953.00	9-28-35	1004.00	...	...
Bussa Oil Co.'s W. P. Brett 1, F. Cordova	-34	695.00	10- 3-35	591.00	104.00	...
R. W. Fair's Fee 6, M. J. Pru	7-28-34	868.71	10- 8-35	814.30	54.41	...
Gulf's W. A. Hindman 5, J. C. Snow	-34	964.37	10- 9-35	964.55	...	.18
Humble's J. Bell 7, S. P. Hollingsworth	7-18-34	869.15	10- 9-35	846.35	22.8	...
A. D. Blackell 20, F. Cordova	7-20-34	891.74	10- 3-35	805.81	85.93	...
L. D. Crim 62, W. P. Chism	7-13-34	921.34	10- 8-35	967.55	...	46.21
J. H. Silvey 5, Geo. Berry	7-20-34	968.60	10- 8-35	892.82	75.78	...
R. E. L. Silvey 50-A, T. J. Martin	8-14-34	961.17	10- 8-35	1017.24	...	56.07
J. Thompson 6, J. Smith	7-20-34	1004.00	10- 3-35	967.00	37.00	...
S. S. Laird Oil Co.'s J. N. Peterson 6, R. E. Winn	8-11-34	853.00	9-27-35	842.50	10.50	...
Sinclair Prairie's I. L. Kinney 47, J. B. Cadena	7-18-34	776.71	10- 7-35	729.38	47.33	...
Standard Oil Co.'s (Kan) J. W. Wheelis 5, D. Shaw	7-10-34	563.06	10- 7-35	550.51	12.55	...
SMITH COUNTY—						
Sinclair Prairie's A. S. Jarvis 22-C, de los Coy	7- -34	556.97	10- 8-35	633.04	...	76.07

Situation Unchanged

CALIFORNIA OUTPUT STILL HIGH AND EXPECTED TO CONTINUE

LOS ANGELES.

INDICATIONS are growing in California that it will be impossible for some time to get producers of the state to cooperate to the point of reducing state production to 590,700 barrels a day. Kettleman Hills, Long Beach and two or three other fields are forcing total daily production to 640,000 barrels, as an approximate average. Kettleman Hills production is running around 93,000 barrels a day, which is about 30,000 barrels over the fixed allotment. Long Beach is running from 11,000 to 15,000 barrels a day too much oil. Santa Fe Springs is as bad as Long Beach. An improvement has been noted at Mountain View, although the proposed state suits have not been filed.

There has been a little slowing down of drilling operators since the reduction of crude oil prices in Southern California, where the price cut was deep, but operations in north part of state are showing no letup, and there is some increased activity. There is a disposition on the part of the larger operators to search for new sources of crude supply, as they feel that the present over production situation only brings the time closer when there will be no need for proration. In fact, some now think there will be a demand within 12 months for every barrel of oil produced in the state, unless new and important fields are found before that time.

Gas pressures are being fast dissipated in all flush fields. The opening up of the wells at Kettleman Hills is hurting the wells in that gas pressures are being lowered too fast and water is encroaching. It is felt that Kettleman Hills is no longer a menace in any respect. The same is true to a greater extent at Playa del Rey and also at Mountain View.

Offshore shipments of California products continues to hold up in excess of 5,000,000 barrels a month. Practically all of these shipments are on contracts, with no spot sales. Japan continues to take a lot of fuel each month and it is generally understood that Japan is storing fuel as fast as possible, for future needs. It is understood such movement will continue for months to come.

The storage situation in California is in fair shape, far betten than for years. It is felt there will be a small addition to storage for the rest of the year.

A.I.M.E. Meeting

INTERESTING DISCUSSIONS AND PAPERS FEATURE ALL SESSIONS

HOUSTON.

PETROLEUM reserves and factors affecting the recovery of oil from various types of fields were featured in papers presented at the Fall Meeting of the American Institute of Mining and Metallurgical Engineers, Petroleum Division, held October 10, 11 and 12 at Houston. Interest shown in the conservation of reservoir energy reflected the recognized importance of this phase of development. One paper stated that the expected ultimate recovery in fields of a certain type has been increased from 12½ percent of the original oil in place to more than 35 percent of the original volume. The discussion following each paper indicated an increasing interest in methods that may increase the ultimate recovery of oil in fields of all types.

Study Crude Reserves

The first paper presented October 10 was a statement by M. Albertson, research engineer, Shell Petroleum Corporation, regarding the problem of estimating oil reserves, which will be found in the current issue of THE OIL WEEKLY. The paper presented a method of calculating the initial oil and gas content of reservoirs based on oil and gas production data and properties of crude oil-gas mixtures, and showed such a method to be applicable to the present problems of the industry.

The paper read October 10 by P. P. Gregory, chief petroleum engineer for the Yates Pool Advisory Committee, on "Estimation of Petroleum Reserves in Prorated Lime Fields" was well received. This paper discussed the methods for solving the problem in fields under volumetric control and fields under hydraulic control. A hypothetical field was used as an example to illustrate the principles involved, and equations were given. It was shown that the amount of recoverable oil computed from the given formulas probably will always be greater than that can be obtained in actual field operations, since profitable exploitation of the field should cease before the reservoir pressure falls to zero.

In fields under hydraulic control it was shown that the recovery of fluids may or may not be accompanied by appreciable reduction in initial reservoir pressure, the change depending upon the effective replacement of withdrawal of fluids. Because of the nature of fields of this type, the pressure decline method used for fields under volumetric control cannot be applied, it was stated. In conclusion the paper stated that no positive methods of estimation of petroleum reserves in prorated flush limestone fields are available, owing to the peculiar character of the limestone reservoir, which lacks the relative uniformity of porosity and permeability found in sand fields.

"A Method of Estimating Oil and Gas Reserves," a paper presented October 10 by D. L. Katz, Phillips Petroleum Company, stressed that in the management of oil properties it is always desirable to know the future behavior of oil wells and oil reservoirs. The full text of this paper will be found in the current issue of THE OIL WEEKLY.

Ralph Schilthuis, Humble Oil & Refining Company, discussed "Reservoir Energy" at the morning session, October 10, and brought out several interesting conclusions concerning the behavior of gas and oil in the formation. It was shown that the useful reservoir energy is that energy capable of producing oil, and that such energy is affected sharply by such factors as water drive, volumetric control and gas cap. The Conroe field was used as an example of a water-drive, gas cap type of field. It was shown that the gas-oil ratios in this field are now approaching the dissolved gas-oil ratio, following a period of rather high gas-oil ratios. The original reservoir energy was about 10,000,000 foot pounds per barrel of oil in place, but it is now considerably lower, due to the reduction of dissolved gas in the resorvoir.

The discussion following the paper brought out that in many fields the gas on top of the structure often is not radically different from that dissolved in the oil, although in light oil fields the variance may be considerable. Equilibrium never is attained in a reservoir, it was shown. Oil often fails to give up its dissolved gas, and this reticence leads to a super-saturated gas condition of the oil.

HARRY H. POWER
Chairman, Petroleum Division of A. I. M. E.

F. B. Plummer and R. B. Newcome, University of Texas, presented a paper October 10 on "Laboratory Investigations on Acid Treatment of Oil Sands." The discussion following the paper revealed that some types of limestone are best treated with a solution of 75 percent acid and 25 percent distilled water, while some of the dolomites respond best with a solution of 50 percent acid and 50 percent distilled water. R. Van A. Mills, Continental Oil Company, stated that use of acid for cleaning oil sands has distinct possibilities, and that it may be used effectively against paraffin accumulations. He added that his company had experimented some with a slug of acid that was followed by a slug of an oily solution, and a slug of sodium carbonate. The action of the mixture tended to clean the formation through a gaseous violence.

"Structure of Clay Gels," a paper presented October 10 by W. K. Lewis, Massachusetts Institute of Technology, was a feature of the meeting. This paper brought out that the behavior of clay suspensions is due primarily to the mechanical interference of the platy clay particles. It was suggested that the thin, flat plates constituting the ultimate clay particles may build up aggregates by the overlapping of the ultimate plates face to face much longer and perhaps much wider than the ultimate plates themselves but not much thicker. In visualizing a relatively dilute suspension of a fine clay of a highly developed and flaky structure, the ultimate particles suspended in water are in violent Brownian movement, which keeps them in random orientation. As the concentration is increased, the particles will interfere more frequently and the suspension will show higher viscosity. It was shown that just as cards thrown at random on the table arrange themselves parallel to the table surface, the flaky and platy clay in suspension, from the point of orientation, is equivalent to a pack of cards suspended in a liquid of the same density as the cards themselves. Microscopic examinations and all other known facts indicate that the structure of a clay is due to this sort of random orientation of platy particles, it was shown.

Henry Arnold, Humble Oil & Refining Company, read a paper on the function of salt water in a reservoir. It was shown that through a steady improvement in production methods, the recoverable oil in typical fields has been increased from 12½ percent to about 35 percent. The East Texas field derives 15/16 of reservoir energy from water drive, the paper stated, and the necessity for keeping the salt water in the formation was stressed, since its production increases disposal cost and lowers the reservoir energy.

Development in New Mexico was featured in a paper by G. E. Burpee and W. L. Wilgus, Shell Petroleum Corporation, on "Insoluble Residue Methods and Their Application to Exploitation Problems in the Hobbs and Eunice Fields." Through a study and chemical analysis of the cuttings, the company has been able to correlate and establish the structural position of the wells. This has been especially helpful, since the packer setting point for

[*Continued on page 57*]

A. P. I. Speakers

MARLAND, THOMPSON AND JONES ARE TO BE HEARD

NEW YORK.

A REVIEW of progress made by American industry in the past 76 years in providing the United States and other countries with an uninterrupted supply of petroleum products appears as a feature on the program of the American Petroleum Institute's 16th annual meeting to be held in the Biltmore Hotel at Los Angeles, Calif., November 11 to 14 next.

The preliminary program, as released by the national trade association of the petroleum industry, presents among the speakers Governor E. W. Marland, of Oklahoma, who will discuss interstate oil compacts as chairman of the Interstate Oil Compact Commission. Legislation enacted by the last Congress has permitted oil-producing states to make compacts designed to promote orderly production of crude oil and conservation of the nation's petroleum resources. Also on the speaking program is Chairman E. O. Thompson, of the Texas Railroad Commission, who will discuss the purpose and operation of laws prorating production of oil among fields, pools, and wells to balance output with demand. A third prominent speaker will be President Charles S. Jones, of the California Oil and Gas Association, whose address will concern conditions in California, one of the largest oil producing states. They will speak at the general session Wednesday afternoon, November 13.

Many Technical Papers

The petroleum industry's progress in solving technical and other problems and in overcoming handicaps throughout its 76 years of effort in the United States will be reviewed by the Institute's president, Axtell J. Byles, at the opening general session Tuesday afternoon, November 12. With President Byles on the first session's speaking program will be Institute Vice President for Marketing, C. E. Arnott, of Socony-Vacuum Oil Company, New York, who will discuss the proposed new marketing code, and Director Baird H. Markham, of the American Petroleum Industries Committee, who will review the work of the committee in tax and legislative fields and will discuss the tax situation as it affects the industry and its customers.

Monday, November 11, the opening day of the meeting, will be given over to committee meetings in accordance with custom. At noon, however, the Institute's Board of Directors and officers will be guests of honor at a welcoming luncheon arranged by the Los Angeles Chamber of Commerce.

The Institute's Board of Councillors will meet Tuesday morning, November 12, to nominate candidates for election to board membership. The election will take place at the Tuesday afternoon session, at which time also accident-prevention certificates will be presented to oil companies and departments showing marked progress in accident-prevention work.

Group sessions for the Institute's Divisions of Production, Refining, and Marketing will start Tuesday evening, with the Division of Production considering the general subject of metallurgy and corrosion. Drilling and production practice in California will be taken up at the Wednesday morning, November 13, group session of the Division of Production. The Division of Refining will discuss the general subject of lubrication, and the Division of Marketing will undertake consideration of the proposed marketing code.

A general session, with guest speakers, will occupy Wednesday afternoon, and the Institute's annual dinner will be held during the evening in the Biltmore Bowl.

The Division of Production group session of Thursday morning, November 14, will concern the general subject of research and oil recovery. The Division of Refining will consider refining problems, and the Division of Marketing will devote its group session largely to a discussion of marketing and related economic problems. The Divisions will elect 20 members of divisional general committees at their Thursday morning meetings.

Group sessions will be resumed Thursday afternoon, with the Division of Production considering drilling practice. The Divisions of Refining and Marketing will have a joint session to consider automotive fuels.

The entire day Friday, November 15, will be given over to field trips and golf tournaments, with special features to be arranged by the local committees. These include motor bus and airplane tours of California producing fields, storage areas, and refineries, with inspection of modern equipment and usages.

INVESTIGATION FUND

Appropriation allows investigators to continue

AUSTIN.

THE House of Representatives has appropriated $10,000 with which their Hot Oil Committee is to continue its investigation. By vote of 82 to 50 last week the members indicated clearly that they favored a continuation of the probe.

The committee consists of Augustine Celava, chairman, Sidney Latham, W. E. Jones, Harry Graves, and H. G. Steward. It was created during the last regular session, and an appropriation of $1000 was granted. A plea was made at that time for a larger fund, but opponents of the investigation had little difficulty in reducing it to the small sum allowed.

The large vote favoring the new appropriation as well as the size of the sum allowed indicates a decided change in the temper of house members.

The committee presented a preliminary report during this special session which outlined generally conditions as they were found, and this was the basis of their request for additional funds.

The resolution under which the committee works was amended last week to provide that the hearings terminate by April 1, 1936. Several members expressed the fear that unless some terminal date was fixed the probe would continue into the late summer and form the basis for a political campaign which will take place next fall.

Efforts to require the committee to file this report within 10 or 15 days after the last hearing were fruitless. Thus by delaying the report until late in the summer members might release it at a time when it would be useful in the campaign. The Attorney-General, the Railroad Commission Chairman Thompson, and the State Comptroller will be up for election at that time. All are involved in the investigation.

Alter Resolution

The resolution has been altered to require that any state official who is being investigated may be present at the hearing, either in person or through his attorney, cross examine witnesses, and subpoena his own witnesses.

Representative Latham protested against this change, arguing that to permit this would result in doubling the record, delaying the hearing, and requiring a more voluminous report. Amendments seeking to require the committee to permit the presence of the press at these hearings were defeated. Several members felt that the public was entitled to know what was going on during the course of the investigation. Committee members, however, protested vigorously against such a plan. They pointed out that they were obtaining a great many leads through hearsay evidence, and that in many instances these leads included damaging accusations against high officials. Most of the time, they said, these reports prove to be groundless, and in many instances could not be traced. Representative Harry Graves pointed out that the effect might be to condemn an official through this fallacious evidence, and later, when it was found to be false, the public would never hear of it.

Representative Morris Roberts of Beeville expressed the opinion that the committee should remain in session all the time the legislature was not in session. He said that the mere presence of the committee had a salutary effect on the oil industry and upon those charged with the administration of oil investigations. He believes that the indirect results obtained have been far greater than the direct results.

Major oil companies were subjected to several attacks during the course of the arguments. Members charged that they were running hundreds of thousands of barrels of hot oil, "more than all the small refineries in East Texas could handle in a year." Several members urged an appropriation larger than was granted to assure a thorough investigation of major company operations.

Enjoin Gas Order

PANHANDLE GAS ORDER IS RULED INVALID BY COURT

AUSTIN.

AN injunction has been granted Texoma Natural Gas Company and Texas Panhandle Gas Company, permanently enjoining the Panhandle gas proration order promulgated by the Texas Railroad Commission insofar as it affects the particular properties of these concerns.

In an opinion handed down by a three-judge Federal Court at Austin last week the order was found invalid. The decision was rendered by Justices Kennerly, McMillan, and Hutchinson.

Finally the court held that the commission order was invalid because it was not based on prevention of a physical waste, but rather sought to divide a market held by one producer with those producers who had no market.

The court pointed out that this was a similar situation to that which had arisen under the old bill known as the Common Purchaser Act.

"In the favorable situation," said the court, "of the pipe line companies as to markets for their gas for light and fuel use, and the unfavorable situation of other well owners who have no markets, may be found the real genesis of the law and order under attack."

There was little ground to show that either concern was producing gas wastefully which might have formed a basis for an order restricting the production in accordance with the statute.

The commission, the opinion pointed out, made much of the fact that the new law, House Bill 266, specifically authorized the commission to "protect correlative rights". Attorneys for the state contended that the order was proper and reasonable as a means of protecting these rights. The court, however, disagreed with this argument. Neither did the court agree that the order was valid merely because it contained a series of "findings" purporting to show that waste was taking place and would be prevented by this means.

The pipe line companies declared that these findings were "a mere makeweight fiating, to bolster insufficient grounds originally put forth . . . based . . . entirely upon . . . equalizing one well owner with another."

"Whether the legislature may, in the absence of waste, and in the interest alone of eliminating abuses, evils and injustices which it may be claimed the present 'law of capture' entails, taking into consideration by means consistent with due process, the vested rights of all owners in a field, provide a substitute for the now prevailing rule, we need not now consider, for it has not, in the statute before us (H.B. 266), undertaken to do this."

"That it (H.B. 266) is a waste statute only, its declaration of policy makes clear."

"Taking it at best . . . (as contended by the commission) the statute has undertaken to say no more than that . . . where there are wells in a field having no market for their production those who have markets may not take their full needs from their own wells. This is very far from attempting, or accomplishing, the repeal of the rule of capture . . . This is merely to say that . . . in order to hasten the day when pipe line companies would voluntarily purchase from well owners having no markets the commission could limit the permissible takings from their wells below their absolute needs."

The opinion held that had the legislature attempted to divide markets as the commission order provided, it would have been class legislation and invalid.

"If, however, as we believe from a reading of the act, the legislature meant only to provide, as it has for some time been doing in its proration statutes, that when there was waste attending full actual production from wells having markets, and because thereof it became necessary to restrict production . . . the law is valid . . . "

The court found that no place in the order did the commission require that the gas companies should take gas from wells having one outlet, but pointed out that this appeared to be one of the purposes of the order.

"On its face then, it operates not as a proration, but as a reduction order . . . "

"We think it perfectly plain that the fact that the legislature wished to prohibit the use of gases for wasteful purposes, that is, for light and fuel, would not, if it were a fact, be warrant for a law apportioning to the use of these well owners, markets and facilities, the private property of others.

"We reject, then, the idea that the legislature, in order to placate those whose wasteful use of gas it was forbidding, intended to take the facilities and property of others to give it to them. We think it plain that the order cannot stand upon such consideration.

"When we consider the commission's order on the alternative ground put forth to sustain it, that the evidence does not overthrow the presumption attending the finding that the plaintiff's operations were wasteful, and its conclusions that the order had a reasonable relation to preventing it, we are in no doubt that plaintiff should have its injunction. For . . . we think it plain that not to grant the relief prayed for would be an abuse of our discretion, not to do so would result either in depriving the public of gas for which it has contracted and on which it relies, or if the plaintiff, complying with the order, undertakes to supplement its takings by connecting with the wells of others, it will serve to put plaintiff to grant and unnecessary expense if the law be found invalid . . . "

The court has announced that a hearing will be held in Houston on October 28, at which time the validity of the law will be considered.

New Gas Problem

WATER EXEMPTION SOUGHT BY SUNRAY OPERATORS

AUSTIN.

NEW problem in production control in the Texas Panhandle was presented to the Texas Railroad Commission last week by operators in the Sunray field.

The operators came before the commission asking for a water exemption for wells in the area. They presented evidence to show that it was necessary for them to flow in the wells wide open through the casing in order to produce the oil, despite the fact that gas-oil ratios under these operating conditions are in excess of 100,000/1.

E. V. Foran, consulting engineer, told the commission that tests made indicated that this was the best method of operation unless gas from these wells could be isolated.

He said that tests had been made which show that when tubing had been inserted and the fluid produced through it, the oil was drowned out, and gas and water only were produced. Foran said this was caused by the low reservoir pressure in the area. He explained that where the pressure is high, tubing the wells reverses this condition permitting the production of the oil with low gas-oil ratios, and holding the water back.

Under provisions of the statute, House Bill 266, wells with gas-oil ratios in excess of 100,000/1 are defined as gas wells. The Sunray wells have been classified as gas wells and appear as such on proration schedules.

Commission officials at the hearing expressed the opinion that the Sunray operators should have first attempted to isolate the gas and complete their experimental work before seeking relief from the commission.

Foran agreed with this statement but explained that offset operators are producing under injunction, and therefore it is impossible to close in all wells and obtain proper results.

An interesting side-light on the hearing was a statement by Gordon Griffin, chief petroleum engineer for the railroad commission, declaring that water exemptions in Texas should be eliminated.

"Exceptions to take care of water are improper in my opinion," Griffin said. "We should cancel every water exemption for oil wells which has been allowed. This encourages an operator to drill his well into the water, and gives an operator with a poor well an unfair advantage over the operator whose well has been properly completed and is in good condition."

Gas produced from the wells is sour and is being processed.

The commission has issued notices requiring operators of all wells to appear at the statewide proration hearing on October 17 to discuss this situation.

There are 114 wells in the Panhandle in a condition similar to that of the Sunray well, and commission engineers plan to work out some system that will apply to all.

Meanwhile operators will be permitted to produce their wells as they have been doing.

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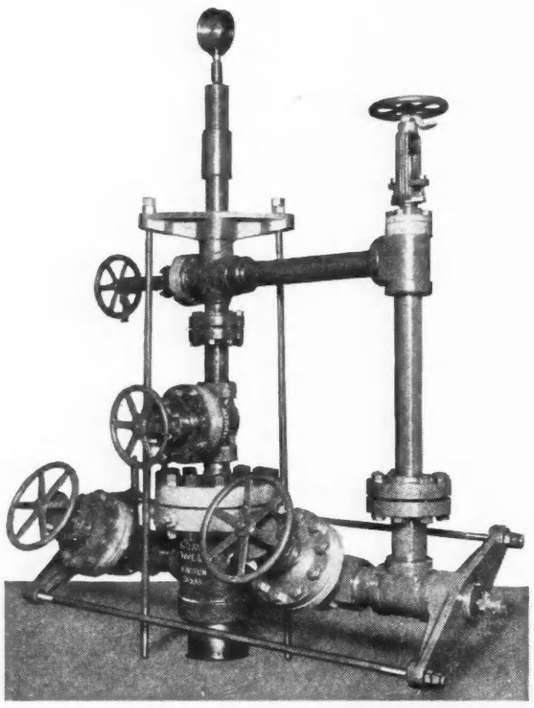

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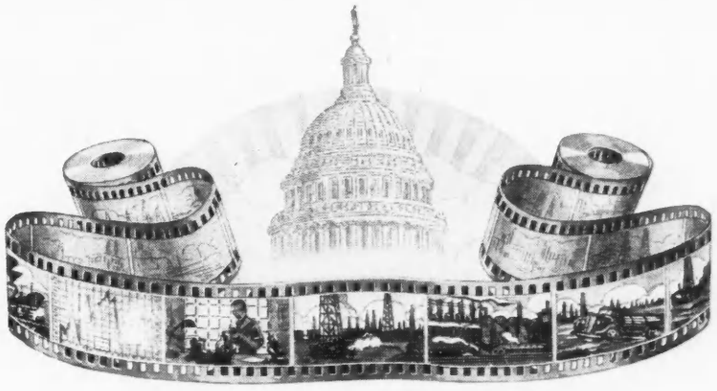


THE OIL WEEKLY'S COMPOSITE VIEW OF INDUSTRY

Edited by JACK LOGAN, Associate Editor

ON the program for the oil industry this week will be, among other items: (1) the mid-year meeting of the American Association of Petroleum Geologists at Mexico City, October 16 and 17; (2) a statewide proration hearing of the Texas Railroad Commission at Austin, October 17. The commission hearing will be important for at least two reasons. It will draw forth testimony in regard to re-gauging East Texas wells, and in regard to recently inaugurated gas proration in the Panhandle.

Last week brought the meeting of the Mid-Continent section, petroleum division, of the American Institute of Mining and Metallurgical Engineers at Houston, with presentation of valuable papers on the engineering and economics of oil production. There were some interesting and important developments in politics, with the Texas legislature considering legislation affecting the industry. Again the oil markets put on a gratifying performance, prices generally holding steady, in a season when contracting demand normally brings highly sensitive or weak markets.

Markets Outside California Firm

In the face of the protracted overproduction and depressed crude and gasoline prices on the Pacific Coast, the oil markets east of California have continued firm, with prices generally remaining unchanged.

At Mid-Continent refineries, gasoline tank car prices have held unchanged for about a month, near the peak levels of the year. They are about two cents a gallon higher than at this time last year, when the Mid-Continent market was in a demoralized condition, with East Texas putting out a flood of hot oil and gasoline. (At that time there was no Connally Act, and federal prohibition of interstate hot oil shipping was based on the NRA oil code).

At present, third, standard, and premium grades of gasoline are bringing 4⅝, 5⅛, and 5⅝ cents a gallon, respectively, at Group Three (Oklahoma) and North Texas refineries. In East Texas the prices are one-eighth cent a gallon lower.

FAVORABLE FACTORS. — Various circumstances have combined to cause the continued firmness of the markets outside California. Demand has held up well, and refiners have practiced restraint in operating their plants. Consequently, the supply of gasoline has been held in close conformity with the demand. In fact, gasoline stocks have been reduced. For the week ending October 5, the American Petroleum Institute reported that the total stocks of finished gasoline came down 604,000 barrels, falling to 42,372,000 barrels. At the latter level, the gasoline stocks were approximately a million barrels lower than one year previously. On October 6, 1934, the stocks on hand aggregated 43,360,000 barrels.

For the week ended October 5, 1935, the A.P.I. also reported that crude oil production was 43,600 barrels a day lower than in the previous week, having come down to 2,719,600 barrels.

WAR TALK SPURS BUYERS.—A noteworthy feature of the current market is the strong demand for bright stock, needed in the manufacture of lubricants; this situation being attributed at least in part to the influence of war development. The war talk apparently has been partially responsible for the heavy speculative buying of bright stock which has been in progress lately, with buyers gambling that prices will go still higher. In the Mid-Continent, bright stocks has found ready buyers, with Eastern dealers eager for the material. Consequently, the bright stock has become scarcer in the Mid-Continent than for several years.

Among the Week's Headlines

GASOLINE EMBARGO.—Without mentioning Italy, the government of Holland October 5, banned exports of gasoline, in its first export embargo order following the decision of the League of Nations to impose economic sanctions against Italy. Officialy, the embargo was declared to be necessitated by a shortage of gasoline in the country.

OIL TO ITALY.—Having been contracted for prior to outbreak of hostilities between Italy and Ethiopia, a

shipment of South Texas crude last week was scheduled to leave Port Isabel shortly for delivery to the Italian government at an unannounced destination. Produced in the Samfordyce field, the oil was the first to move through the recently completed pipe line of Valley Pipe Line Company, built by independent interests, from the field to tidewater.

Gas Control Set Back

In consequence of a three-judge federal court decision October 8, the Texas Railroad Commission apparently will have to materially revise its recently inaugurated program of gas conservation in the state.

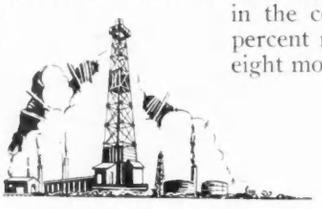
The commission's program is based on a new Texas law, passed in response to outcries against wasteful practices in the Panhandle. The court enjoined the commission from enforcing its present natural gas order against two companies.

However, the court did not question the right of the legislature or the commission to prevent waste of oil and gas. In effect, it upheld waste prevention, but disapproved the order through which the commission acted. (The commission's order provides for prorating the market among gas producers, and requires pipe lines to buy its takings ratably from the producers. Plaintiffs in the litigation attacked, as confiscatory, the requirement that they divide their markets with other producers).

It appears quite possible the validity of the gas conservation law itself may be upheld when the cases come before the three-judge federal court at Houston, October 28, for hearing on their merits. For the law itself seeks only to prevent waste, while the ratable takings are necessitated by the commission's order. It appears, similarly, that the commission may be free to write a new order that will prove valid, by prohibiting wasteful uses of gas, as in stripping and carbon black plants, without requiring the ratable takings by pipe lines. Of course, the writing of such an order is more easily discussed than executed. And the commission will have more worries in the matter.

Adopt Compact Program

The Interstate Oil Compact Commission met last week in Oklahoma City and adopted by-laws that will govern the conduct of the group. It was agreed that the votes by states will be valued on the daily production of each state according to relationship with the output of other compacting states. This means that Texas will be the most powerful unit in the group, for its output far exceeds that of any other state. It also was decided that a committee of four would be appointed to study conservation, imports and other factors influencing general conditions and proration problems. Bureau of Mines figures are to be used in the allocation of production to states. Heretofore, states outside of those who have ratified the compact have been welcome at the meetings, but have not been permitted to take active part in the discussion. In the future these state representatives will be given an opportunity to join in the discussion, although they are without actual votes.



Auto Outlook Cheerful

Officials of automobile companies are predicting that sales next year will be 20 to 35 percent higher than for this year, if business continues to improve. The American automobile industry is expected to show twice as much profit in 1935 as in 1934.

It is indicated that 1935 output of cars and trucks in the United States will be around 3,750,000 units.

In countries outside the United States, new records are being established this year in automobile production. England has set such new records in each of the past three years. Germany set a new record in 1934, and likely will show further gain for 1935.

More Flying, More Oils Used

Developments in aviation continue to offer encouragement for the oil industry, since increase of flying means more sales of gasoline and oils.

Atlantic Air Line.—Passengers, mail, and express will be flown over-night regularly, on a commercial basis, between New York and London, according to plans that have been drawn up for operation of a 50-ton flying boat. This was announced October 7, by the National Aeronautical Association at Washington. Meanwhile, a smaller ship is being built for similar use on a planned Trans-Pacific route.

Flying Increases.—In the first half of this year, new records were established in number of air plane passengers carried and the number of passenger miles flown. The Bureau of Air Commerce of the Department of Commerce reported that for the period the regular schedule air lines in the country flew 28,729,128 miles, carried 377,339 passengers, and transported 2,221,013 pounds of express.

Large Oil Use Reflected

Auguring well for the oil industry were figures related lately by the Bureau of the Census, Department of Commerce, on oil burners, gasoline pumps, and steel boilers.

For the first eight months of 1935 total shipments of oil burners by 160 manufacturers, numbering 73,390, were 37 percent greater than in the similar period of 1934, and 55 percent above the corresponding 1933 record.

In August of this year, shipments of gasoline measuring and dispensing pumps, based on reports of 30 manufacturers, included 7551 power operated pumps, or nearly three times as many as the 2630 in August, 1934. Shipments of hand-operated gasoline pumps in August this year numbered 776, against 620 in August last year.

New orders for steel boilers, based on reports of 68 manufacturers, aggregated 4237 in the first eight months of 1935, or 45 percent more than the 2909 in the corresponding period of 1934, and 60 percent more than the 2652 orders in the first eight months of 1933.

MEN IN THE INDUSTRY'S NEWS

H. S. AUSTIN, president of Tuscarawas Pipe Line Company, builder of the Iraq pipe line and the Ajax lines, was a recent Tulsa visitor when he spent several days in conference with Standard Oil Company of New Jersey pipe line officials.

FRANCISCO C. PLATZ of Argentina, petroleum engineer representative of Yacimientos Petroliferos Fiscales, the organization in charge of developing government petroleum reserves and fields in the republic, arrived in Houston last week after visiting in New York, Pittsburgh, Dallas and the East Texas fields. Ingeniero Platz contemplates spending about two weeks in Houston.

HENRY J. HAWLEY, geologist and assistant manager of the Dallas district of The California Company, has been elected chairman of the Dallas Petroleum Geologists, a local organization comprising active members of the American Association of Petroleum Geologists. Charles B. Carpenter, member of the staff of the United States Bureau of Mines, was relieved as secretary by R. H. Stehr, geologist for Texas Seaboard Oil Company, and nominated vice chairman.

L. D. DAVIDSON, of London, England, has been appointed first vice president of Royal Dutch Shell's subsidiary, Compania Mexicana de Petroleo "El Aguila" S.A. (Mexican Eagle Oil Company). Mr. Davidson recently arrived in Mexico City, where he will make his headquarters.

ROBERT L. CANTU has been placed in charge of the engineering department of the Huasteca Petroleum Company at Tampico, succeeding L. F. Kahle, who has been transferred to Standard Oil Company of Venezuela. Mr. Cantu is a graduate of Louisiana State University, and has been with Huasteca for 10 years.

HAROLD SIDWELL, petroleum engineer, Sinclair Prairie Oil Company, Nowata, Oklahoma, and Miss Betty Blue, were married in Houston, October 12. Mr. Sidwell is the son of Joseph Sidwell of Sinclair Prairie Oil Company, Tulsa, and Miss Blue is the daughter of John Blue, vice president of Standard Oil Company of Kansas, Houston.

C. E. WHITNEY, sales manager, Baker Oil Tools Company, Los Angeles, spent several days last week in the Houston office.

HENRY W. PULLMAN of Burma, who had planned to return to the United States following a period of service in foreign fields, has accepted a contract in Burma with Pyinma Development Company, Limited, a company recently organized by Indo-Burma Petroleum Company, Limited, and British-Burmah Petroleum Company for the development of two blocks of acreage adjoining Burmah Oil Company's Moola lease two miles south of Chauk. J. C. Gallagher, an American with many years of foreign service, is field manager for the new company.

RALPH STEINMAN, chief geologist for Sinclair Prairie Oil Company, has returned to Tulsa after visiting several Texas areas. Mike Hamilton has resigned from the company's Oklahoma City district.

J. W. BRADBURY, general agent of Mexican Gulf Oil Company at Tampico, was recently in Mexico City on a business trip.

CARL V. SCHLAET, independent oil operator of Tampico, has recently returned to that city, after a three weeks' trip to New York.

CHARLES A. SMOOT, son of W. C. Smoot, president of the First National Bank of Bartlesville, has been made assistant cashier of the National Bank of Tulsa. Smoot is a native Oklahoman, born at Clinton. He resigned an assistant cashiership in the First National Bank of Bartlesville to accept the Tulsa position. Smoot will work under Schell Harmon, vice president of the National Bank of Tulsa, handling correspondent bank business.

ROBERT C. HILLYER, chief engineer of Mexican Gulf Oil Company at Tampico, has returned to his office after a vacation spent in the United States.

GEORGE C. FRANCISCO, JR., manager of Sun Oil Company at Houston, is building a two-story brick residence of Early American architecture.

C. B. ECHOLS, assistant purchasing agent of Mexican Sinclair Petroleum Company, has returned to Tampico after spending a vacation in Mexico City.

HARRY B. LEE, field auditor for the Gulf Companies, with headquarters at Houston, is recuperating from a major operation, performed in a Houston hospital.

F. W. YENNY, in charge of the personnel department of Huasteca Petroleum Company at Tampico, is spending a vacation in Mexico City.

HARRY MAXWELL, head of the personnel department of Sun Oil Company, Philadelphia, visited the Dallas operating headquarters the past week.

H. A. IRELAND, consulting geologist who recently received his doctor's degree from the University of Chicago, presented as his subject, "The Use of Insoluble Residues for Correlation in Oklahoma," at the regular October technical meeting of the Tulsa Geological Society on Monday evening, October 7.

J. A. DAVIS, auditor of Mexican Sinclair Petroleum Corporation at Tampico, is in New York on a vacation trip.

CHARLES R. PARKER, former geologist, drilling contractor and recently connected with the production department of Barnsdall Oil Company, has joined the sales force of Pittsburgh Equitable Meter Company and will work out of the Tulsa offices under A. J. Kerr, district manager.

DR. W. E. WRATHER, Dallas, gave the first of a series of lectures planned for the oil geology course offered by Southern Methodist University, Dallas, on October 8. He spoke on "Origin of Oil."

R. V. WHETSEL, general manager of Compania de Gas y Combustible Imperio, S.A., (Cities Service Company subsidiary) has returned to Tampico after a three months' vacation in the United States.

DWIGHT MARSHALL, for several years connected with the Kansas district in the scouting department of Continental Oil Company, has been transferred to the Ardmore-Ada district to exchange places with Jake Julian. Julian served in the scouting department of Skelly Oil Company for many years and is already well known in the northern Mid-Continent.

ALLEN L. HUME, formerly with the geological department of Mexican Gulf Oil Company, has accepted a position with the labor department of Cia. Mexicana de Petroleo "El Aguila" S.A., at its Tampico refinery.

G. E. ANDERSON, professor of geology in the University of Oklahoma, was guest speaker before the Oklahoma City Geological Society in its luncheon meeting on Monday, October 7, presenting his theory on the formation of gypsum through hydration of anhydrite.

JOHN A. HANNA, of the executive department of Mexican Gulf Oil Company at Tampico, is spending his vacation visiting relatives in New Jersey.

C. V. MILLIKAN, chief petroleum engineer, Tulsa and Herbert F. Beardmore, petroleum engineer, Seminole, both with Amerada Petroleum Corporation, have made a tour of East Texas and several Gulf Coast fields. At the conclusion of the trip they attended the American Institute of Mining and Metallurgical Engineers.

DIED:

GENERAL JACOB F. WOLTERS of Houston, a member of The Texas Company's legal department for five years and late representative of that organization in legislative matters at Austin, Texas, died October 8 in an Austin hotel following an attack of the heart. Outside of the oil industry, General Wolters was best known for his activities in the Texas National Guard, which organization he commanded during military control of the East Texas oil field when relations between the landowners and producers were threatening. He commanded the state militia also when boom conditions at the Borger and Mexia oil fields proved too much for local law enforcement bodies. He also served with distinction during the Spanish-American and World wars, during the Corpus Christi hurricane in 1919 and during the Galveston

Longshoremen's strike in 1920. General "Jake," a native Texan, was born in 1871. Elementary education was received in Schulenburg, followed by a college degree from Add-Ran Christian University, predecessor of Texas Christian University. In 1896 the general graduated from county politics by becoming a representative at the legislature. He came to Houston in 1905, establishing the law firm of Wolters, Blanchard and Woodul.

GEORGE W. MAYER, former vice-president of Imperial Oil Company, Limited, and director of Standard Oil Company of New Jersey, died recently at Oakville, Ontario, Canada. Mr. Mayer spent 47 years with the Standard Oil Company organization, the last four years of his active association being in the capacity of marketing director of the New Jersey company. He was born January 28, 1858, at Madison, Indiana, and entered the oil business in 1879 following bankruptcy in the cattle business. His connection with Standard Oil interests began in 1893 when Consolidated Tank Line Company of Cincinnati, with which Mr. Mayer was associated, was absorbed by Standard Oil Company of Kentucky. In 1913 he was made vice-president and marketing director of Imperial Oil Company, and in 1922 was transferred to New York. Upon retirement at the age of 67, Mr. Mayer moved to Beverly Hills, California.

ELGOOD CHAUNCEY LUFKIN, from 1920 to 1926 chairman of The Texas Company board of directors, died October 9, at his home in Rye, New York. Mr. Lufkin, who was 71 years of age, had been in the oil business for 54 years. After one year with Tide Water Pipe Line Company in Pennsylvania, he entered Massachusetts Institute of Technology, from which he graduated as a mechanical engineer in 1886. After graduation he joined The Holly Manufacturing Company, builders of pumping machinery. In 1889 he became chief engineer for Indiana Pipe Line Company, then under construction from Lima, Ohio to Chicago. In 1895 he moved to Buffalo, N. Y., to become vice president and general manager of The Snow Steam Pump Works, manufacturers of line pumps and gas engine compressors. In 1909 he became manager of the Natural Gas Department of The Texas Company, and in the same year was elected vice president of The Texas Company with headquarters in Houston. In 1911 he was transferred to New York and two years later was elected president of The Texas Company. In 1920 he became chairman of the Board of Directors of the company. During the World War, Mr. Lufkin was a member of the Petroleum War Service Board. Since 1926 he had been practically retired.

RUSSELL F. RYAN of Houston, independent operator, petroleum engineer, geologist, and chairman of Greta Field Operators Association, died in a Houston hospital October 8 following injuries received in an automobile wreck on the Hempstead highway.

Ryan, member of the engineering firm of Parks and Ryan, took a prominent part in activities of the Houston Geological Society. He was also a member of the A.A.P.G., A.I.M.M.E., and A.P.I. In addition to foreign field service, his geological work has been closely associated with several successful wildcats in the Gulf Coast, and was recognized as an authority on salt domes.

Among the survivors are his widow; his parents, Mr. and Mrs. J. H. Ryan, and a sister. Burial was in Freeport, Illinois.

DR. FREDERICK L. RANSOME, 67, widely known geologist, died at his home in Pasadena, California, October 6. He had been associated with the California Institute of Technology since 1927.

FRANK COOPER, 68 years old, veteran oil well driller, died in a Tulsa hospital October 8, as the result of injuries sustained when he was struck by a truck trailer on September 23. Cooper was born in Wood County, Ohio, had drilled in Ohio, Indiana, California and Oklahoma and had lived in Tulsa for more than 20 years.

A. P. I. FIELD TRIP
Outstanding California fields may be visited

LOS ANGELES.

SANTA FE SPRINGS, Long Beach and Dominguez oil fields in the Los Angeles Basin, are scheduled for the principal field inspection trip to be made by delegates to the Sixteenth Annual Meeting of the American Petroleum Institute which opens in Los Angeles, November 11. The field trip is planned for Friday, November 15, after the close of the official discussions at the Biltmore headquarters.

Fields in the San Joaquin Valley, coastal region or other producing sections of the Los Angeles Basin may be selected for inspection by visiting Institute members if there is a preference to look over a particular area. Special transportation facilities, including both automobiles and airplanes, will be available for those who wish to see a particular field.

Plan Air Tour

It is expected that an air tour will be planned which will bring into view, in the course of the day, all fields in the state. Leaving Los Angeles in the early morning, the flight would first cross the Tehachapi Mountains to Bakersfield, capital of the San Joaquin Valley oil district. Such fields as Mountain View and Kern River would be inspected on the east side of the San Joaquin, before crossing to the western edge of the valley to view Midway, Maricopa, Elk Hills, Belridge and other fields along the Temblor Range foothills.

At Avenal, on the Kettleman Plains, some 80 miles northwest of Midway, luncheon and an inspection tour of Kettleman Hills would await the flyers. From Avenal the route would head for the coast over the Kreyenhagen Hills and the San Rafael Mountains to the Santa Maria producing area in Santa Barbara County. Skirting the coastline, fields in Santa Barbara and Ventura counties would be inspected, following which the flight would parallel the coast highway around Point Dume to Playa del Rey field in the Los Angeles Basin. From Del Rey the route would be directed inland over Inglewood and Dominguez, hitting the coast again at Long Beach. Huntington Beach would mark the southern end of the flight, returning from here to Los Angeles, Coyote and Santa Fe Springs would be viewed. Distance to be covered in such a flight would approximate 600 miles.

Friday Tour

Leaving the headquarters hotel at 9 a.m. Friday, the official field tour will call first at Santa Fe Springs field. Guides will be assigned to groups of 10 visitors and will conduct them over the field to see such equipment and operations as may interest them.

In addition to regular drilling and producing operations at Santa Fe Springs, which will include pumping wells to the depth of some 8000 feet, large scale gas-lift installations, many types of multiple-cylinder gas engine installations, a complete central mud cleaning plant, pumping equipment, etc. There will be set up and in actual operation some of the newer, revolutionary devices, various types of water locating devices, and many other special tools or equipment which are novel to this section of the country.

Long Beach field will be visited following Santa Fe Springs where, upon arrival, a barbecue luncheon and other refreshments will be served. Inspection of this field will cover town-lot drilling, directional drilling and congested operating conditions in their most outstanding form.

Following the Long Beach visit, the next and last call will be made at Dominguez field by way of the Watson refinery and tank farm district where there is concentrated probably the most extensive above-ground storage facilities to be found anywhere in the world. At Dominguez an opportunity will be offered to study a carefully worked out field development program where gas lift and gas injection processes are being carried out on a large scale. Here also will be available the microscopic laboratory, the pressure bomb, standardization and porosity determination equipment of the operating companies.

The return to Los Angeles will be in ample time to avoid conflict with entertainment plans or travel schedules. Delegates will be given an opportunity to indicate which fields they are interested in visiting at time of registration. Besides the official trip Friday, special visits will be made on Saturday and Sunday following.

MEETING CHANGED

TULSA.

DUE to unavoidable circumstances the date of the annual member ship meeting and the annual meeting of the executive committee of the Kansas-Oklahoma Division of the Mid-Continent Oil & Gas Association has been changed from October 8 to Friday, October 18. The meeting will be called at 2:00 p.m., in the conference room of the Tulsa Building. Meeting of the executive committee will follow directly the membership meeting. New officers for the division are to be elected.

Repressuring Project

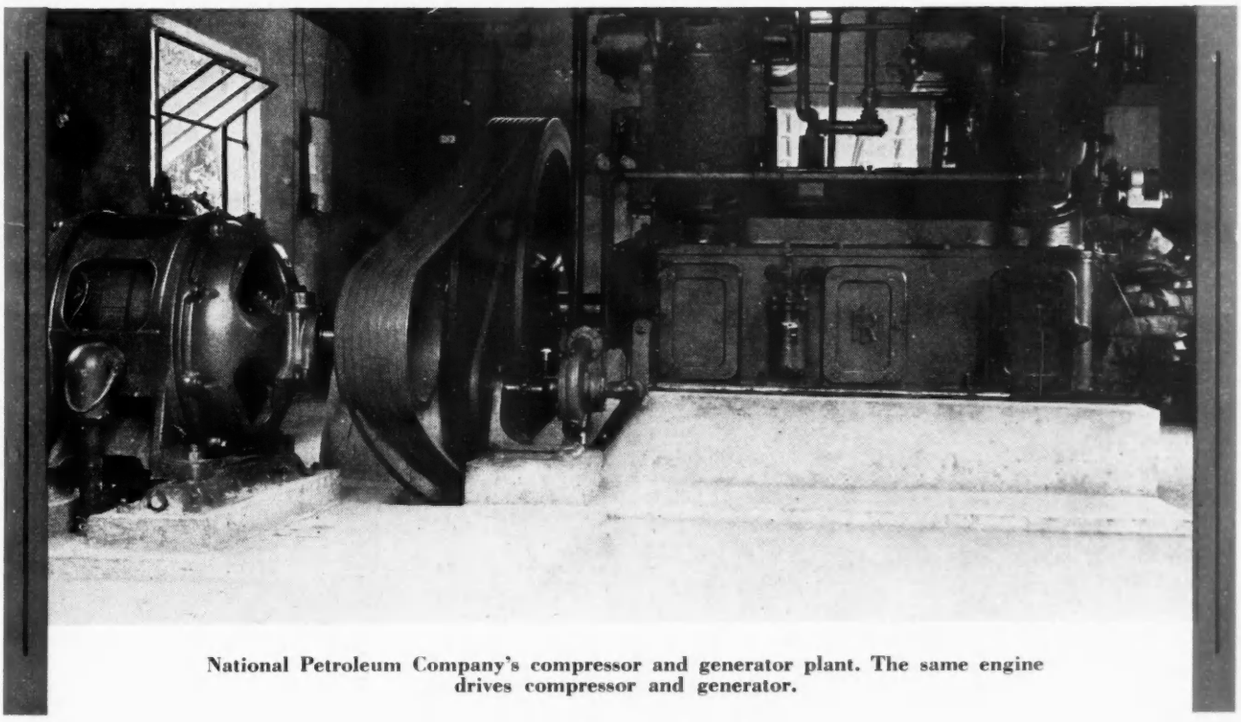
INCLUDES WELL REHABILITATION AND USE OF ONE ENGINE FOR COMPRESSING AND GENERATING

By JOHN C. ALBRIGHT

ONE of the latest repressuring projects to be commenced near Oil City, Pennsylvania, is on a lease north of the old boom town of Pithole. National Petroleum Corporation, Titusville, recently has taken over some of the oldest wells in this part of the state, reconditioning those that can be, and drilling others where the casing and sub-surface equipment has deteriorated badly. These wells were drilled originally so they could be pumped from the Lytle or upper producing sand. Others were completed to the third, or "black oil sand," which lies about 130 feet below the 700-foot depth of the Lytle horizon. The two sands are separated by shales, in which salt sand is located.

When the original wells were drilled years ago, no particular attention was given to a regular spacing plan, being located on a hit and miss layout, probably according to convenience more than anything else. This has not been found to be beneficial to either gas or air repressuring. Many of these old wells have leaking casing, caused by gradual decay and faulty seats where the pipe was landed when they were completed. When the wells are found to be in such condition that they can be reconditioned economically, pumping equipment is rearranged for producing them. Others are plugged so the oil and water will not migrate from the beds in which they are found, and new producing wells are drilled.

C. C. Hogg, president and general manager of National Petroleum Corporation, does not rely upon the holding qualities of any of the old wells for input purposes, drilling new ones for this work. These input wells are drilled through all three sands, and bottomed in the impervious and non-producing formation below the black oil sand. Only one string of casing is used, and that is really only a surface string as it is set at about 270 feet, using 6¼-inch pipe. Drilling is done with a small portable gasoline-powered rig, using cable tools for making the hole. The rig is fitted with shear poles for handling the casing.



National Petroleum Company's compressor and generator plant. The same engine drives compressor and generator.

Just as soon as the drilling operations are completed, two-inch tubing is run in the hole. It is equipped with a bottom-hole packer that is applied to the shales above the first, or Lytle, sand. This packer is run so all water and other strata will be

sealed off effectively from the producing formation. After the two-inch tubing has been tested and found gas tight, mud is pumped into the annular space between the string and the walls of the hole.

The next operation is the running of a string of one-inch pipe inside the tubing. This small pipe is fitted with two packers, one to be applied just below the Lytle and the other just above the deeper black oil sand. In this manner, the salt sand is sealed off from both bearing formations.

With both strings of small pipe in the hole, the two-inch tubing is used as the producing medium for the Lytle sand, and the one-inch tube for the lower horizon. The two-inch tubing is anchored to the casing with "I" bolts connected to nipples screwed into the two-hole casing head at the lower end, and runs through tubing clamps at the upper end. The one-inch pipe is secured to the two inch with a combination nipple and two inch by one inch bolted flange. Air lines are run from a riser, connected to the lateral serving the well, and leading to suitably placed tees in both strings of pipe. Index type throttles are incorporated in the design of this setup, with high-pressure globe valves between them and the pipe. The amount of air delivered to each well is determined from tests of the sand penetrated and is applied after a meter is placed on each input line. The throttle is set at the point desired, and remains in that position until a further meter test is desired. Suitable unions and nipples are placed in each line so that the meters may be installed easily, and without disturbing the connections. A small volume of air required to operate the repressuring project, but fairly high pressures are necessary. Because of this condition relatively small pipe is used for mains and laterals in the field. A four-inch main line leads from the combination air and electrical generating plant, from which laterals are distributed to the various input wells.

Air for repressuring is furnished by a centrally located plant, designed so that pressure and power for pumping may be obtained simultaneously, and with the same engine. Electric power is used for the central eccentric pumping power, and is led to it through the unusual type of transmission wires.

Air for repressuring is taken directly into the suction of the low-pressure cylinder and is boosted to about 40 pounds, after which it is cooled in aerial coolers and returned to the high-pressure cylinder. It is discharged from this side of the engine between 230 and 250 pounds, and led directly to the input wells without cooling. Moisture is removed from the air in the first-stage cooling, but traps are provided on the high-pressure side as well.

The engine that drives the compressors is a four cylinder one that also drives the 43.8 Kva 480-volt generator. Power from the engine to the close coupled generator and to the circulating centrifugal water pump is obtained by V-type belts. An electrical device placed in the circulating water pipes operates if the water is not delivered with the proper volume to maintain the desired temperature in the jackets.

Oil is pumped from the producing wells with jacks, operated from the central power. A predetermined back-pressure is held on the casing head. Tests are conducted regularly to determine the amount of air and gas coming from the producing wells, and gates on the casing head are used to control the output of the vapors.

As the wells vary from 703 feet, top of the Lytle sand, to 854 feet, top of the black sand, little power is required to operate the eccentric central power. Only a 10-horsepower electric motor is used by National Petroleum Company. It operates at 1800 revolutions per minute, but is reduced through pulleys to the gear of the overhead eccentric.

Two eccentric geared pumping power operated by 10-horsepower motor on National Petroleum Company lease.

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IASE - RUSSELL - AND OTHER ACTIVE MID-CONTINENT AND GULF COAST POINTS

Geophysical Programs

IN GULF COAST DISTRICT ARE EXACTING TECHNICAL OPERATIONS

By BRAD MILLS, Associate Editor

« PART 2 »

THE principal problem in any Gulf Coast area is the location of structures. A very important phase of this search is the elimination of unfavorable localities with a minimum effort and expense. Most of the larger companies prefer localities that do not offer tremendous odds against random drilling, while others confine their activities to sub-marginal prospects in oil producing areas.

The two types of preliminary work now under way includes the evaluation of remote prospects and the search for new prospects. The cost of a discovery that follows geophysical work in an area that previously showed favorable indications usually is much less than the cost of a discovery in a very remote area. The first function of geophysics was the evaluation of the existing sub-marginal prospects of 12 years ago, but application of the various methods to the more remote districts has been common for years. The least expensive discoveries along the Gulf Coast have followed the re-examination of sub-marginal prospects that had been carried over from former exploration campaigns.

No hard and fast rules are being followed in any locality, but cost is a major consideration with most operators. Most of the prospects have been located or indicated by the least expensive method. This method always is followed by a more detailed, exact and expensive method, with the hope of culling or accepting the area through the second method. As might be expected, the quickest and least expensive methods are the most general and least detailed, but they serve well in a rapid survey to determine structural tendencies. Where it is necessary to obtain a general report on short order, the low cost methods are satisfactory enough to prevent overlooking striking anomalies.

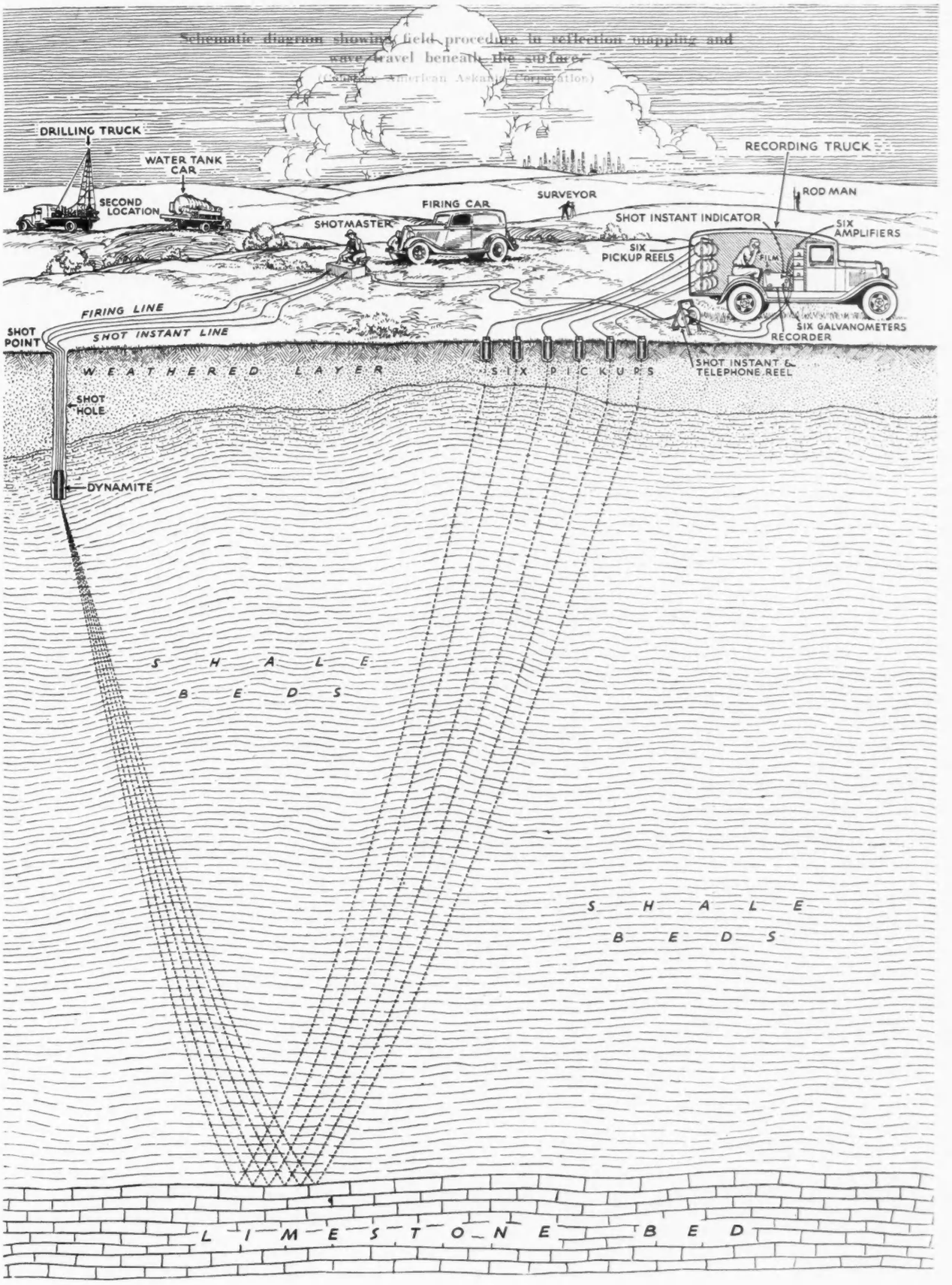
The policy of one major operator is to study an area from reports that are available. This is followed by a careful surface examination by geologists. Where sufficient leads are obtained, the torsion balance is brought into action and a rapid survey completed. The reflection seismograph usually follows the torsion balance, and the structure or lesser anomaly detailed by this method. Drilling usually follows the completion of the above sequence where the first method indicated a structure and subsequent methods checked the original indication.

A number of companies sometimes attempt short cuts between the first work and the drill. In a few areas the reflection seismograph has proved most effective in the preliminary work, and for this reason is applied as soon as a study of the available data is completed. This practice may eliminate the usual surface methods as well as the torsion balance. It is generally admitted that the reflection seismograph will reflect striking anomalies shown by other methods, but other methods often fail to show seismograph structures.

The amount of preliminary work in the average Gulf Coast field closely parallels the hazard curve. Where four or five methods are applied before drilling is started, the hazard is materially reduced below that of the quickly drilled area. Cost of preliminary exploration work may be less where only one or two methods are used ahead of drilling, but the average discovery cost over a considerable period may be far greater. The percentage of discoveries following intensive exploration work has been far higher than that which followed the more rapid preliminary work recorded in a few districts. A number of operators contend that it is less expensive to test an area by drilling after limited preliminary work than by drilling after a preliminary campaign that included application of original data, surface geology, torsion balance and reflection seismograph. This might be true if it were not an easy matter to drill one well slightly off structure after one method had indicated an anomaly. Such a course might cause an operator to abandon a potential producing lease, only to be followed by an operator who will some time give more attention to preliminary work that will lead to an important discovery. All major companies are checking one method by one or two more efficient methods before starting drilling operations.

The magnetometer is an instrument for studying the magnetic properties of formations under the earth's surface. The instrument has its limitations but it often provides an inexpensive method of determining the structural tendencies of objective formations. Readings are taken at regular intervals, and if the formations are lying horizontally the magnetometer will show uniform readings at all locations. If the beds are dipping in one direction, the readings obtained will not be uniform and the changes will occur rapidly as the structure is approached or left from any angle. A bed lying 2000 feet below the surface and rising to give an anticlinal condition normally will be indicated by the magnetometer, where the depth of the bed is 2400 feet around the structure. The magnetometer

is a valuable instrument for making a quick survey of a locality, but indicated structural anomalies usually are checked by torsion balance and reflection seismograph. When used in the field, the magnetometer is set up, leveled and adjusted. The operator makes observations by looking through the tele-



Schematic diagram showing field procedure in reflection mapping and wave travel beneath the surface.
(Courtesy American Askania Corporation)

scope mounted on the instrument. Some areas are easily worked with the magnetometer, but others can not be accurately detailed with this instrument.

The torsion balance was developed to study the differences in weight or densities of the formations under the earth's surface. It is a much more accurate and sensitive instrument than the magnetometer, but like all other geophysical methods, it has its limitations. The torsion balance is a simple instrument in principle and its design is based on the universal law of gravity. In construction it consists of a beam with small weights at each end that are suspended by a very fine wire. The beam is so delicately constructed that very small fluctuations in gravity pulls caused by variations in the density of earth materials near the surface will deflect the beam. In field work the torsion balance is set up in a small house and left for four or five hours at each location. Care is taken to prevent the approach of trucks, livestock or even persons, since such activity would affect the readings. If the underlying beds have been disturbed and pushed up to give a structural indication, the readings of the torsion balance will show a difference in the density of the formations thus disturbed. If all underlying beds are horizontal the instrument will show a uniform reading at the various locations. Where the beds are gently dipping in one direction the readings will show a gradual change as the torsion balance is moved in the direction of the dip. The instrument is credited with the discovery of several salt domes along the Gulf Coast.

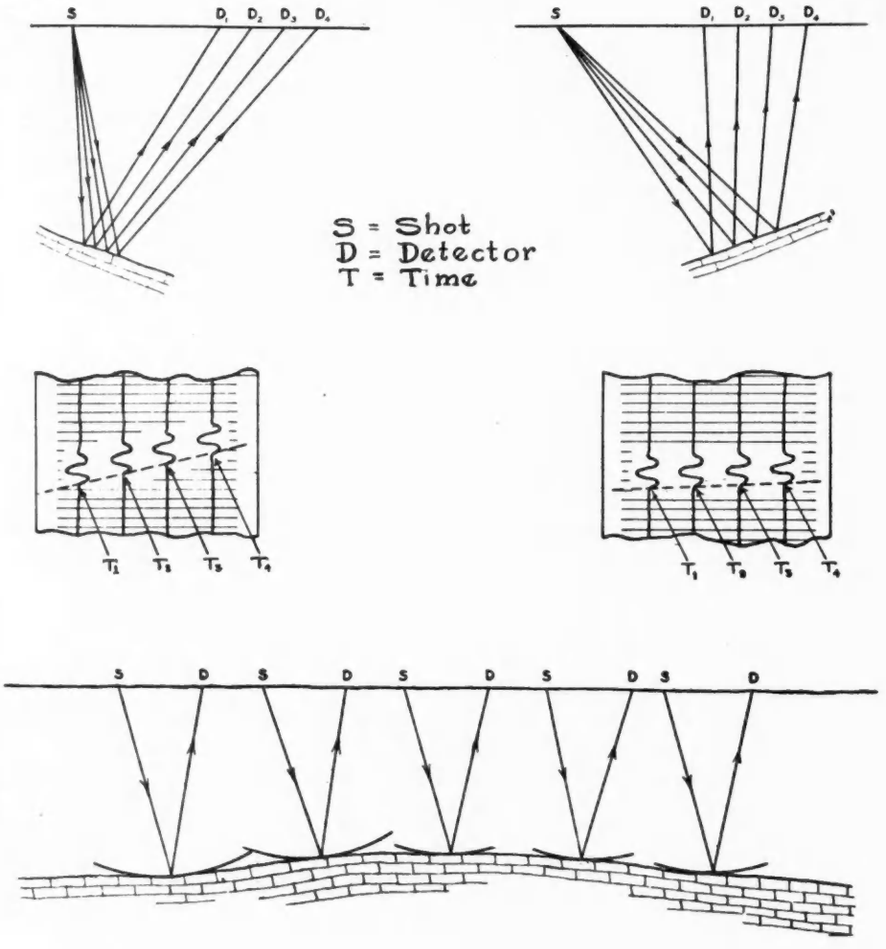
The seismograph has played and is playing such an important part in Gulf Coast development that the mention of geophysical work usually suggests this instrument in one of its variations. The instrument had been used for years in the study of earthquakes prior to its adaptation to the search for structural conditions. The original seismograph simply detected and measured the tremors of the earth's crust that were sent out by earthquakes. When any kind of matter or material is violently disturbed a series of waves is sent out. Such waves travel with a definite speed but the velocity depends on and is affected by the nature of the material through which the waves are forced.

Sound travels by waves, the velocity being greater through dense than through lighter materials. The geophysicist creates his own earthquakes, and with a very sensitive pick-up or seismograph records and studies the speed of sound through formations near the surface. In this manner he is able to detect both changes in formation and the change in dip of the formations. The seismograph is used to record the speed of sound through the formation by refraction or reflection.

Refraction Method

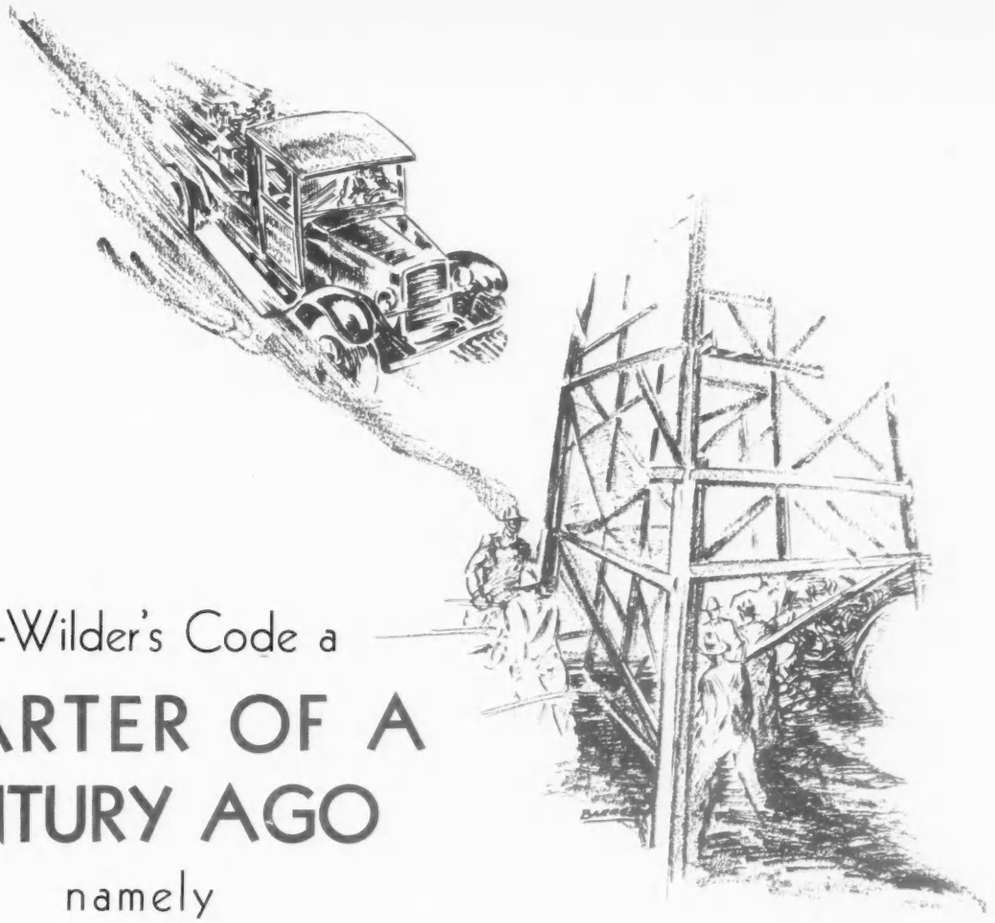
The refraction method was first used along the Gulf Coast and gradually became an established factor in exploration work. With this method the shot was fired and the sound waves picked up by detectors located several thousand feet from the shot point. If the sound waves reached the pick-ups or seismographs at the same time they had traveled through uniform and unchanging formations. If the time of arrival of the sound waves at one or more stations or pick-ups varied with that of the others the waves had traveled through different formations between the shot point and the detectors.

The detectors in refraction work are placed in the form of a fan from the shot point and they are not necessarily equi-distant from the shot point. When corrections for differences in distance are applied and it is found that the sound traveled much faster



This drawing gives some idea of the principle of the reflection seismograph. The upper sketches show the angles described by the sound waves in their travel from the shot point to the detectors. The middle sketches show a short section of the recording charts. The chart on the left shows the wide variation in time arrivals at the four detectors that was caused by the dipping formation. The chart on the right shows the almost simultaneous arrival of the sound waves at the various detectors. The rising formation was almost enough to offset the difference in distance of the detectors from the shot point. The bottom sketch shows the results obtained across an anomaly. Four detectors are shown but six are ordinarily used.

(Courtesy McCollum Exploration Co.)



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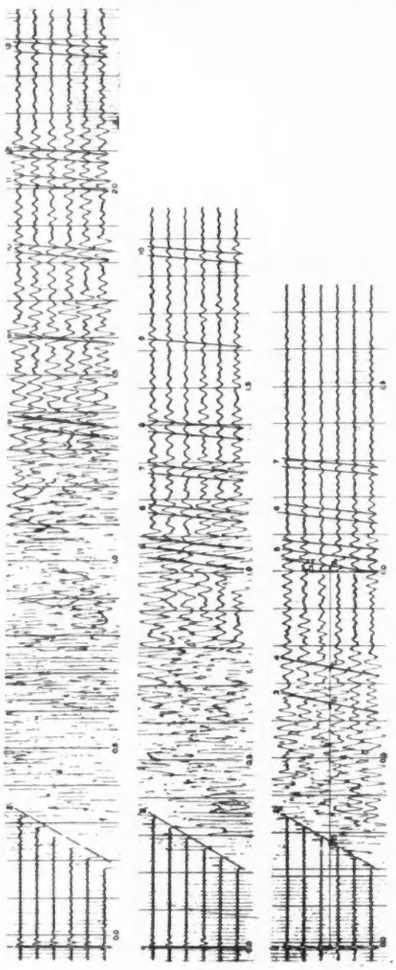
Norvell-Wilder *Supply Company*

to two or three detectors than to the others it is safe to conclude along the Gulf Coast that the waves traveled through salt, which has a much higher velocity of travel than ordinary formations. The waves are picked up by the detectors and by means of special mechanisms are recorded on a piece of moving film. After discovering the salt dome the structure is mapped by placing the instruments at other locations and firing other shots.

The refraction method is very effective within certain limitations, but it is not detailed enough and may fail to show smaller structures. It is possible to cover a large area in a short time with this method and it is still useful where salt may be found near the surface. By 1930 the refraction seismograph had a long list of discoveries to its credit, yet in less than two years the method became practically obsolete. Structural tendencies rather than salt masses became the principal requirements as deeper production was developed, and a newer and more detailed method was due to appear.

Reflections recorded by six detectors at the same location. The record on the left shows reflections from about 3000 feet. The middle record shows the best reflections at a depth of about 5000 feet, and the record on the left shows good reflections from about 9000 feet. The intensity of the waves varied because of the difference in size of the shots.



The reflection method appeared about 1930 and soon changed the geophysical picture along the Gulf Coast. The principle underlying this seismic method are so simple that the average layman can understand them. The method is based upon the principle of the echo, which is nothing more than a reflection of sound waves. By observing the time at which a sound is created by a shot and recording the interval between the shot and the arrival of the echo, it is possible to calculate the distance of the reflecting bed, when the sound velocity between the shot point and the reflecting bed and between the reflecting bed and the detectors is known.

When a shot is fired near the surface and a sound wave is produced, the wave travels down to the reflecting formation and back to the surface where it is picked up by the six detectors. The detectors merely convert the mechanical vibration into electrical impulses which are amplified and recorded by multiple galvanometers on rapidly traveling photographic paper. The instant of the shot is transferred electrically to this photographic record and the time marks in fractional seconds are recorded on the paper. Thus the record shows the interval that elapses between the shot and the arrival of the echo, and by considering the average velocity of the waves and measuring the distance between the shot point and the receiving point it is possible to calculate the depth of the reflecting formation.

Six pick-ups or detectors ordinarily are used, since it would be difficult if not impossible from a reflection standpoint to identify and classify the seismic impulses shown by a single detector. Where several detectors are used the reflected impulse will be shown by the nearly vertical incidence of the echo, or almost simultaneous arrival of the waves. The refracted waves will arrive at the various receivers at different intervals, the variations depending on their distance from the shot point.

In reflection shooting the sound waves form an angle in traveling from the shot point to the reflecting bed and returning to the detector. The angle thus formed by the path of these sound waves is always bisected by a line drawn perpendicular to the reflecting bed at the reflection point. This bisecting or perpendicular line is called the normal. Since one shot is fired and six detectors pick up the vibrations, the normal for each detector touches the reflecting bed at slightly different points. The normal is established by the fact that the angle of reflection equals the angle of incidence.

Due to the difficulty in obtaining uniform reflections from the surface to depths of 8000 or 12,000 feet, two or three shots of different intensity are sometimes discharged at or near each location. Reflections are obtained from the first and lightest shot from depths to 3000 or 4000 feet. The second and heavier shot will give satisfactory reflections from beds around 6000 and 8000 feet, while the third and heaviest shot will result in good reflections from 8000 to 12,000 feet. The three records will give formation conditions from a level near the surface to 12,000 feet. The same vibrations are reflected with each shot, but each charge is of the correct intensity to give best reflections within a certain depth range. There is always a sufficient overlapping of reflections recorded on each of the three records to check identifying markers from top to bottom.

There are many variations in the application of the reflection method. One operator places the six

detectors about 2000 feet from the shot point, but this is not necessarily the best distance. There is no agreement as to the best depth for shot holes, the depths ranging from a few feet to 200 feet. In many areas the surface layers give trouble and it is necessary to place the dynamite below these absorbent and weathered formations. This surface layer sometimes absorbs most of the vibrations and in addition provides a very slow medium of sound transfer. Regardless of the depth of the shot hole or the size of the shot, the same condition will be indicated. The very shallow hole and light shot may fail to create a disturbance that reaches the detectors, however.

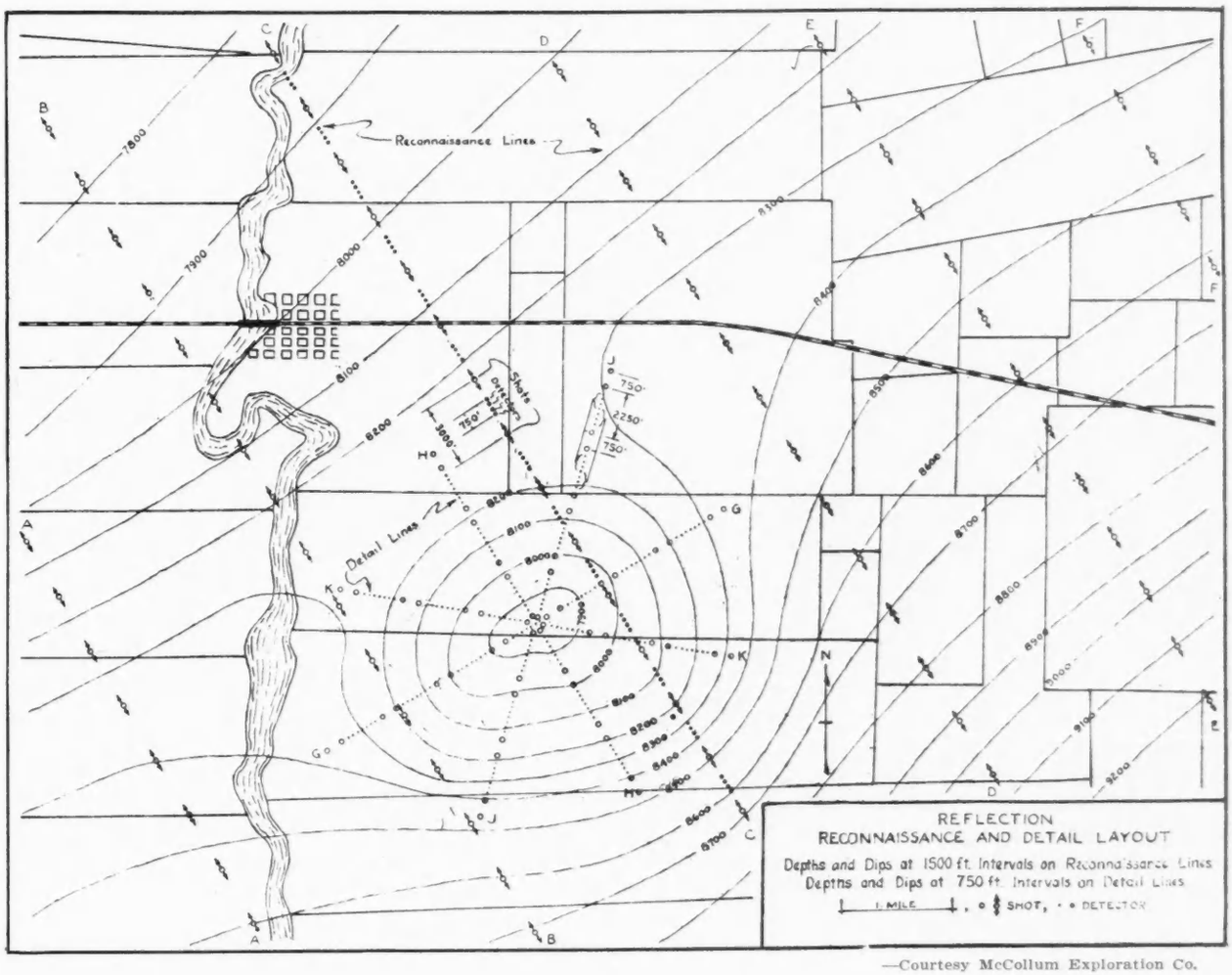
Dynamite used is the 60 percent type and the amount discharged varies with the location and the depth of reflections desired. The quantity varies from a few ounces to more than 200 pounds, although as little as one-tenth of an ounce has been used. The heavier charges simply give deeper reflections, since the same vibrations are sent out with the small charge as with the heaviest shot.

The speed of sound waves in the Gulf Coast area varies from 5500 to 10,000 feet per second in the average formations between the surface and 12,000 feet. These speeds vary with the depth, density and location. The speed of sound waves in salt is about 15,000 feet per second, which is high enough to make the refraction method very effective at shallow depths.

Small rotary outfits are used by a few operators for drilling the shot holes. Other operators use small core drilling outfits, while a few dig the holes by hand. Some of the very sensitive detectors will function satisfactorily when the holes are very shallow and the shots light.

One of the best reflecting beds along the Gulf Coast is the Heterostegina of the Middle Oligocene. It is not ordinarily difficult to identify reflections from this formation, and even in obtaining deeper reflections the Heterostegina is a valuable preliminary marker. Good reflections are obtained from dozens of levels in several areas, but it is not necessary to identify and classify more than three or four formations in the average locality.

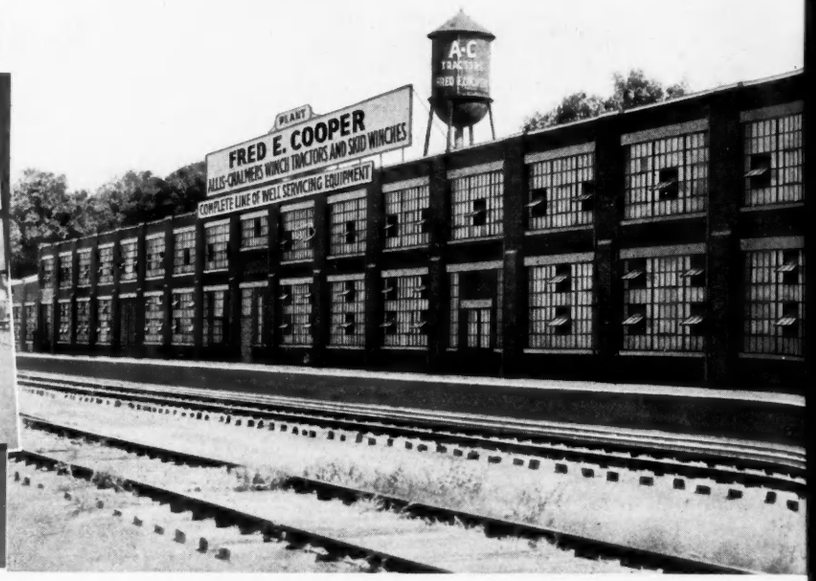
In working an area for the first time with reflection seismograph one company draws parallel reconnaissance lines at intervals of about two miles and follows these lines from one side of the area to another. The shot holes along each line are placed at 3000-foot intervals to give the depths and dips at 1500-foot intervals, since the detectors are placed midway between each shot hole. In detailing a structure the depths and dips are shown at 750-foot intervals. Another company shoots along parallel lines 1½ miles apart during the preliminary exploration work. When anomalies are indicated cross shooting is used to detail the structure. Reconnaissance lines are always run down dip and across the strike. This practice enables the geophysicists to find any unusual change in formation levels.



—Courtesy McCollum Exploration Co.

ALLIS-CHALMERS

DISPLAY ROOM AND OFFICES



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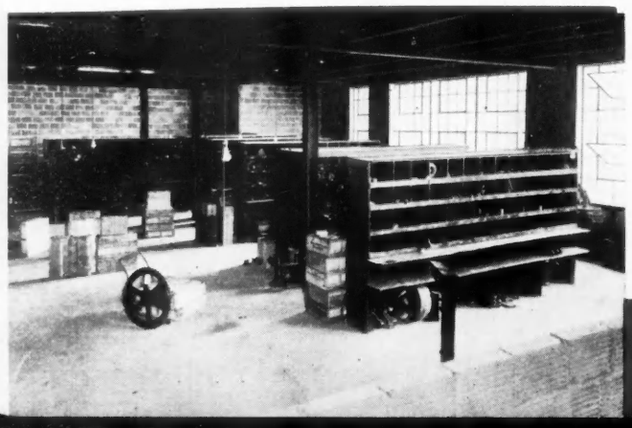
Office Manager, Fourteen Years with Cooper.

VIVIAN DALTON
Secretary and Foreign Correspondent

A. B. (Bill) BAILEY
Sales Manager for Mid-Continent and Rocky Mountain Division

PARTS DEPARTMENT



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● With the opening of this great plant a new era begins in the development of mobile oil well servicing equipment. Here under one roof is the world's largest organization devoted exclusively to the manufacture, sales, and service of oil field winch tractors, skid-winches, and power units.

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The Allis-Chalmers organization is today one of the recognized leaders in the tractor industry and built, in 1932, the first rubber tired tractor. The air tired tractor has increased the speed, economy, and usefulness of the tractor, giving to it the tremendous sturdy draw-bar pull of the draft horse combined with the fast flexible road speed of a motor truck.

In this new plant will be designed and built all special and standard oil field equipment for Allis-Chalmers tractors that can be handled to better advantage here than through the Allis-Chalmers factory at Milwaukee.

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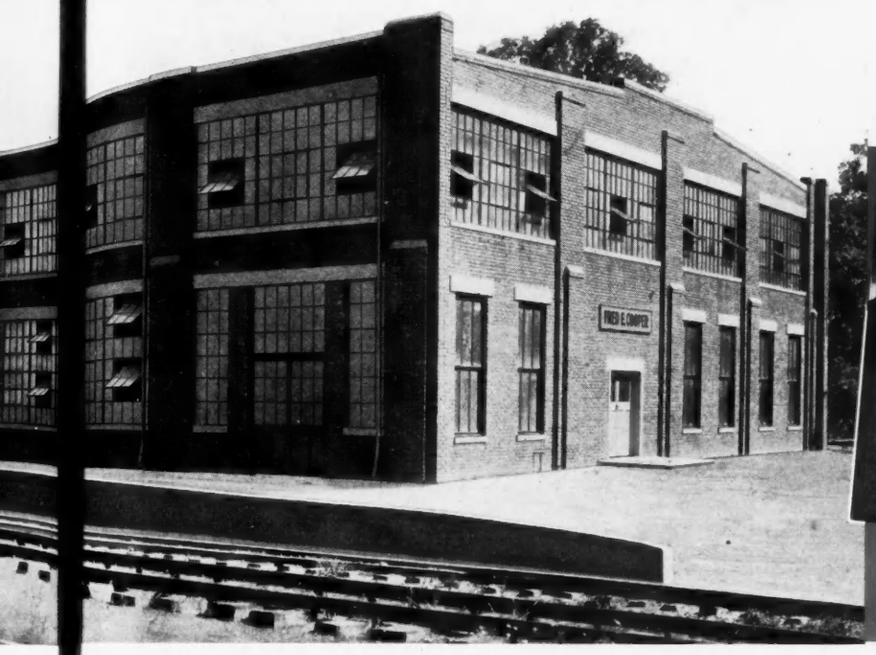

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● For the past eighteen years Cooper has been designing and developing oil field servicing and well pulling equipment with the Rumely and Allis-Chalmers organizations. There is an Allis-Chalmers, Cooper designed pulling unit for every depth well. The complete line of equipment comprises three sizes of single drum winch tractors, two sizes of double drum winch tractors, nine sizes single drum skid winches, three sizes double drum skid winches, and four sizes of power units.

All Allis-Chalmers tractors are high speed, heavy duty type, having road speeds of 15 to 30 miles per hour. Low pressure air tires are standard equipment on all tractors. These units may be equipped with telescope mast, spudding equipment, and sprocket for rotary drive. All models are built with Cooper designed air-cooled brakes.

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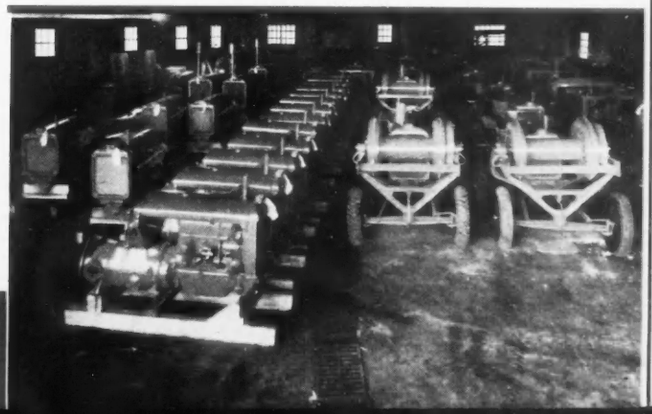
LARRY COBURN
Mechanical Engineer

WAREHOUSE



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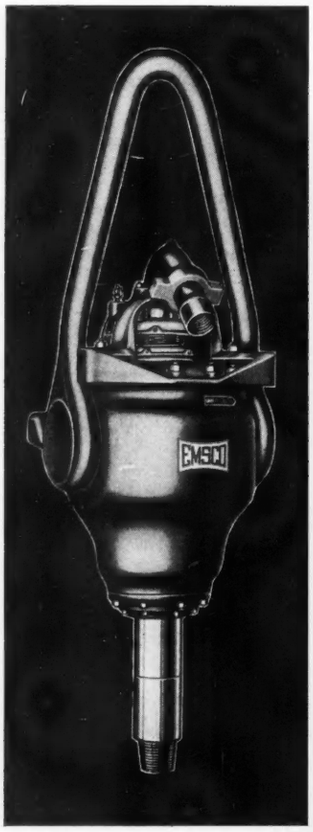
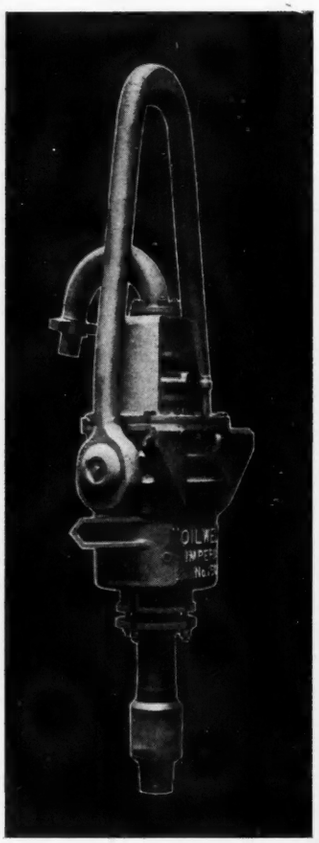
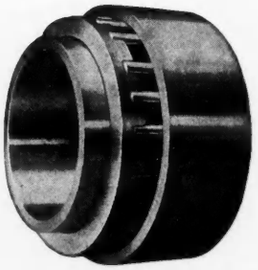
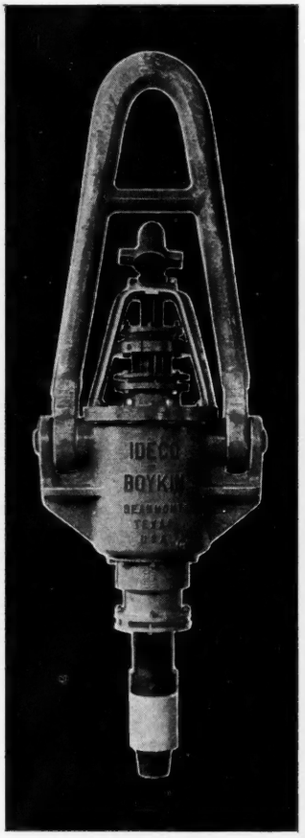
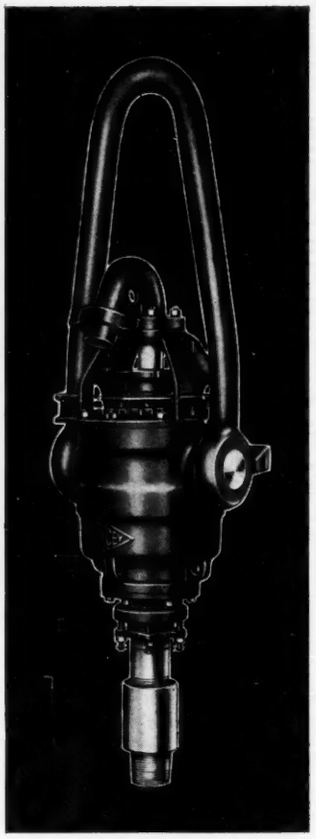










THE SWIVEL must be fit for its work. The key to its fitness is the bearing on which it turns. Swivels for the heaviest work of the oil fields, therefore, like other heavy-duty drilling equipment built by leading manufacturers, have American Roller Bearings as standard parts.

AMERICAN ROLLER BEARING CO., PITTSBURGH, PA.

AMERICAN ROLLER BEARINGS

PECULIAR PROBLEMS FOUND WHILE

Drilling in Borneo

OVERCOME BY UNUSUAL METHODS

By M. NARITOMI, Field Manager,
Nippon Oil Company, Japan

M. NARITOMI, field manager for Nippon Oil Company, presents in his own words solutions of various drilling problems encountered in wildcatting in the jungles of Borneo. His useful discussion includes a method for utilizing gas coming from a wildcat as fuel for drilling that wildcat; an unusual method for recovering frozen pipe by utilization of the well's gas pressure; a method for cementing casing under high pressure conditions; a discussion of drilling mud theory with drilling curves for illustrations.

SOME interesting phenomena were experienced recently by Nippon Oil Company during drilling operations in Borneo, where the company conducted exploration for oil in the jungle near Sampajoe during three years, 1931 to 1934. The total length of six drilled holes was 8024 meters (26,318.72 feet) the deepest test among these wells was 1806 meters (5923.68 feet), which also was the deepest in Borneo at that time.

Used Gas Produced By Well

In the light of modern drilling methods, like high-pressure control drilling, it is possible to utilize the gas coming from the well being drilled. But, while the gas may be backed by very high pressure, it may be too unstable to use continuously for certain purposes.

In one well, equipped with the combination system, after the primary casing (13⅜-inch string) was cemented, the cable tool system was applied, making possible a close determination of formations. A string of 10¾-inch casing was landed at 396 meters (1297.28 feet), while a string of 8⅝-inch casing followed.

At 420 meters (1377.6 feet), a gas sand was penetrated that yielded a flow strong enough to blow out the four-inch tools and the mud contained in the hole.

It was observed that if the string was lowered to bottom with its own full weight, the gas came upwards between the 10¾-inch and 8⅝-inch casing. But if the casing was supported on the surface with slips, one stroke of the bit on bottom would permit the gas to flow up into the 8⅝-inch casing easily. Due to this peculiar condition, it was decided to leave the full weight of the casing on bottom without being supported on the derrick floor. Consequently, it lowered itself automatically with each inch drilled. In this way, the casing string was landed at 445 meters (1459.6 feet), and was packed to the 10¾-inch casinghead. At that time every precaution was taken against a gas blowout from outside of the 8⅝-inch casing. The gas volume measured 3,000,000 cubic feet per day under a casinghead pressure of 20 kilograms per square centimeter (284.46 pounds per square inch).

Then the rotary system of drilling was placed in service again for the purpose of deepening the hole. As precautionary measures, a viscous mud was specially selected for drilling through the 8⅝-inch casing shoe, and the casinghead pressure was held at about 45 kilograms per square centimeter (639.03 pounds per square inch) in order to balance the column weight of mud inside of the casing. At 530 meters (1738.4 feet) another gas sand was encountered, so the 6⅝-inch casing was cemented at 852 meters (2794.56 feet). At the same time the casing was packed on the 8⅝-inch casinghead so as to recover this gas as well as the gas produced at 420 meters. The well was equipped with an American made high-pressure drilling valve and gate valve after setting the 8⅝-inch casing, and the gas was overcome effectively while drilling.

The two casingheads referred to were connected with each other under 35 kilogram per square centimeter pressure and, instead of wood for fuel, the gas from the well was utilized successfully for boiler fuel, and completion of two deep wells was accomplished economically.

Unusual Frozen Pipe Recovery Method

A rather unusual instance happened in one of the wells drilled in Borneo when the pipe froze. While drilling under full steam power in two wells making high-pressure gas, the boiler feed water pipe clogged without previous notice on account of lime scales. It always is hazardous to stop the steam supply on such an occasion, as the result is to freeze two strings of drill pipe, one in each well.

Therefore the pipe string in one well was raised promptly into the casing and packed under pressure by use of the valve gate. But on account of the clogged water pipe sufficient steam did not remain in the boiler for such emergency work on the other well. The result was that nearly 1000 meters of 6⅝-inch drill pipe froze.

There was not a single fishing tool in stock, and being in a desert country far from supplies, there

was no way but to try to remove the pipe by pulling. The boiler was fixed temporarily for these emergency measures, but even with more than 200,000 pounds power of pulling it was impossible to raise the pipe. The circulation of mud was obtained easily, but it was not accompanied with gas as before.

One night operations were suspended, under 180,000 pounds pulling power with only the mere hope of building up a sufficient gas pressure below the frozen portion to release it. In the morning, circulation of mud was tried with two mud-hog pumps paralelled through the frozen pipe. The accumulated gas and mud burst up over the 13-inch casinghead with great pressure. The frozen pipe was fortunately recovered with 160,000 pounds weight without any attendant fishing job. A further depth on this well of 1806 meters (5923.68 feet) was attained after cementing the 8⅝-inch casing at 1200 meters (3936 feet).

Cementing High-Pressure Gas Well

Cementing casing in a high-pressure gas well was practiced in one well in Borneo. The 13-inch casing was set at around 80 meters; 8⅝-inch casing cemented in a sticky formation at 600 meters (1968 feet). Three gas sands were penetrated from 900 to 1000 meters (2952 to 3280 feet) depth, and at the depth of 1020 meters (3345 feet) it was decided to set 6⅝-inch casing to cement off these gas sands.

The gas was so strong that the drill pipe could not be raised out of the hole. Then with thin mud, circulation was set up for six days to reduce the gas energy. As soon as the drill pipe was removed from the hole after being replaced with heavy mud a string of 6⅝-inch casing, which was prepared in fourbles, was lowered immediately. At the same time circulation through the casing showed the gas was still strong and everything looked unfavorable for cementing.

After cementing equipment was prepared, the 6⅝-inch casing was packed on an 8⅝-inch casinghead into which was inserted a three-inch flow nipple connecting a valve and pressure gauge.

Then 170 sacks of cement were pumped in by means of the pump-and-plug method of placing the cement, and just before the number 2 wooden plug was attached to the number 1 plug, the valve, which was attached at the flow pipe of the 8⅝-inch casinghead, was closed, and thereby a pressure of 40 kilograms per square centimeter was applied within. This was the pressure delivered from the pump through the 6⅝-inch casing, and the same pressure was indicated on the cementing head with the subtraction or addition of the difference of column weight inside and outside of the cemented casing. Whether the result was good or not was ascertained by means of the shut-off test.

A further explanation of this method is as follows:

Referring to figure 1, 6⅝-inch casing was cemented at 1000 meters by the above procedure. The depth of gas sand was 950 meters. Height of cement outside of the 6⅝-inch casing was 150 meters from the bottom. Specific gravity of this cement was 1.9; specific gravity of the mud inside and outside of 6⅝-inch casing was 1.3 and 1.1, respectively. As a general practice, heavy mud was selected for the inlet, while the outlet mud was in the state of being gas-cut.

On the above assumption, the formula for computing the pressure laid on the face of gas sand was:

$P=(1.1\times85+1.9\times10)+P_2$

$P_2=P_1-[(1.1\times85+1.9\times10)-(1.3\times95)]=P_1+11$

Where P=the applied pressure on the face of gas sand,

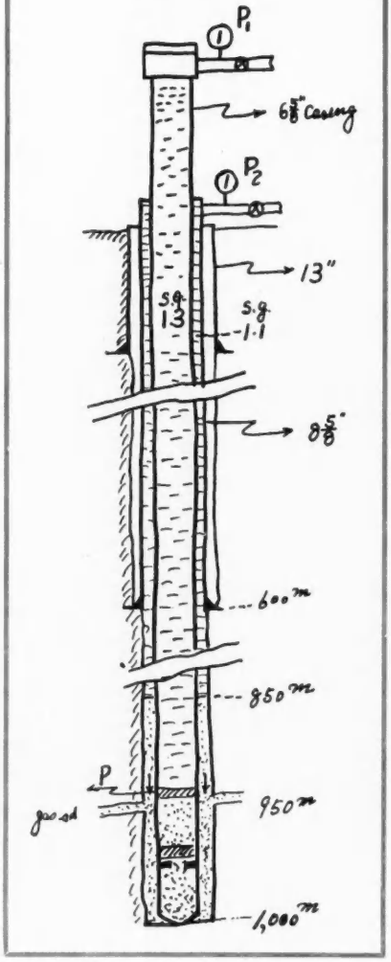
P_1=the pump pressure on the 6⅝-inch cementing head,

P_2=the indicated pressure on the 8⅝-inch casinghead,

The numbers 85, 10, 95 are the column weights of the mud water by kilograms per square centimeter at the depth of 850, 100, 950 meters respectively.

In the formula, when P_1=60 kilograms then P=183.5 kilograms. This means that the pressure of 183.5 kilograms was laid on the face of the gas sand, compared with about 112.5 kilograms pressure by the ordinary method. In this case the friction loss for the delivering of pump pressure at the end of this operation was practically negligible, as the pressure was applied under a very slow speed of pump.

FIGURE 1



One important thing to be noted in connection with this method is that each formation-pressure should be greater than the sum of the column weight of liquid above the formation and P_2, in order to prevent leakage.

In fact, aside from pressure control by weight of cement and mud at the outside of casing or on the face of the gas sand, the addition of pump pressure on it, probably may influence the final set and compactness of the settling cement which may be in the state of gas cutting. This is most important in overcoming a formation pressure of gas sand.

Effect of Drilling Mud

The effect of drilling mud will be described by means of the attached diagram which was applied on a Nippon Oil Company well in Japan.

While the drilling mud theory is pretty generally understood and has its widest application in the construction field, it is just as effective as observed in this diagram. In this diagram, those curves represented as No. 1, No. 2 and No. 3 are the drilling rates in the same formation in one well used with the same size of 3½-inch drill pipe. Therefore the effectiveness by drilling mud may be compared easily as follows:

No. 1 *Drilling Curve.* The

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Electric Power Unit

RUGGED SIMPLICITY: A sturdy, simple and efficient unit, capable of continuous operation under heavy duty and suitable for uninterrupted service within reasonable limits of attention and maintenance.

CLEAN EXHAUST: The controlled-turbulence combustion chamber insures clean exhaust thru complete combustion at all recommended speeds and loads.

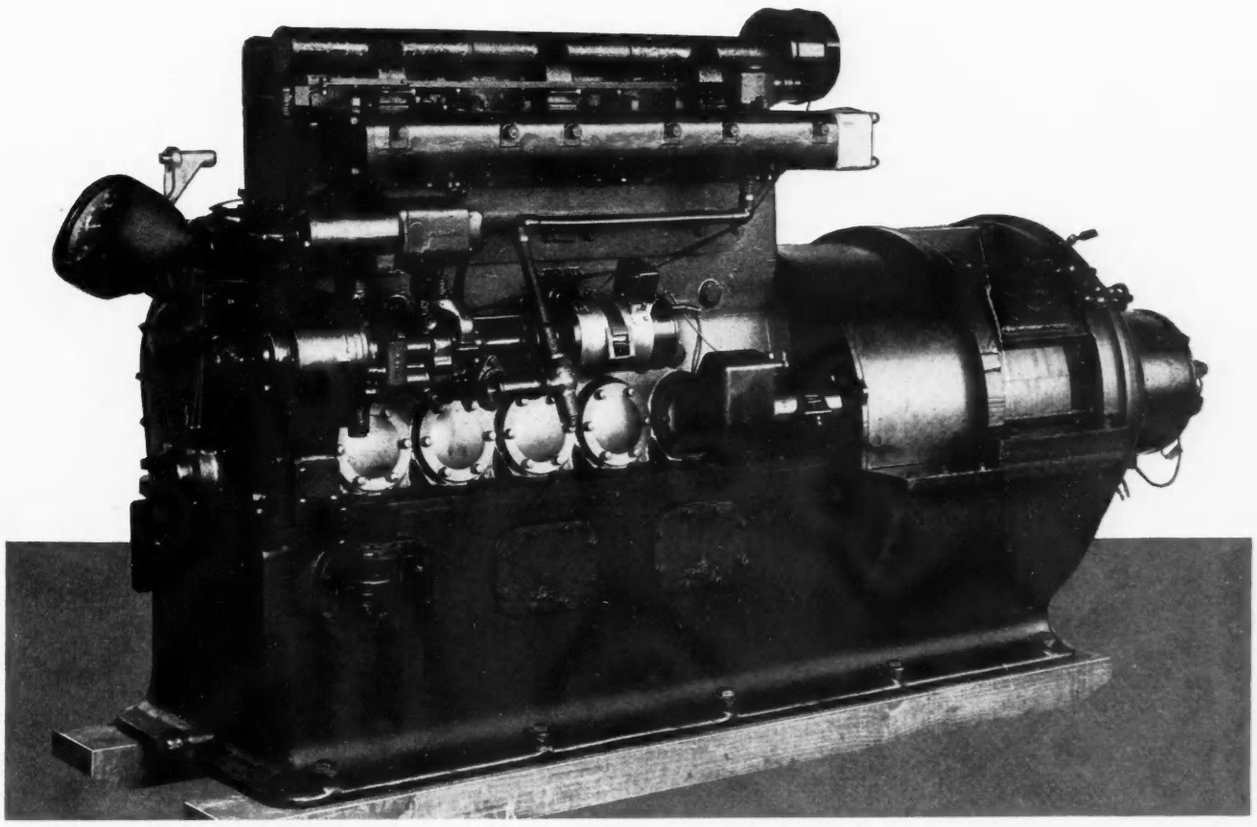
ODORLESS: Thru complete enclosure, highly efficient crankcase ventilation and perfect combustion, Superior Diesels are as free from objectionable odors as any gasoline engine.

QUIET: Controlled combustion, oil cushioned tapped mechanisms, silenced air intake flow contribute to the quiet operation of this engine.

COLD STARTING: Provision for both compression increase and compression release (features not found in most Diesels), cold starting without pre-heating devices is assured.

SIMPLE CONTROL: Superior Diesels are at all times under one lever control.

THE NATIONAL SUPPLY COMPANY



well was cemented with six-inch casing at 1416 meters. During the drilling time below the casing, an enormous deposit of sandy particles, due to caving, was found in the circulation ditch. The circulation mud behaved like water with low viscosity, though when weighed at periodic times each shift, it registered from 1.1 to 1.3 specific gravity due to fine sand suspended in the mud.

Due to the low viscosity of drilling mud the drilling progressive curve was very sharp and assumed 13 degrees. The rate of drilling was more than 40 meters (131.2 feet) per day. The formations were logged as an alternation of almost sand and sandy shale and it was easy to drill.

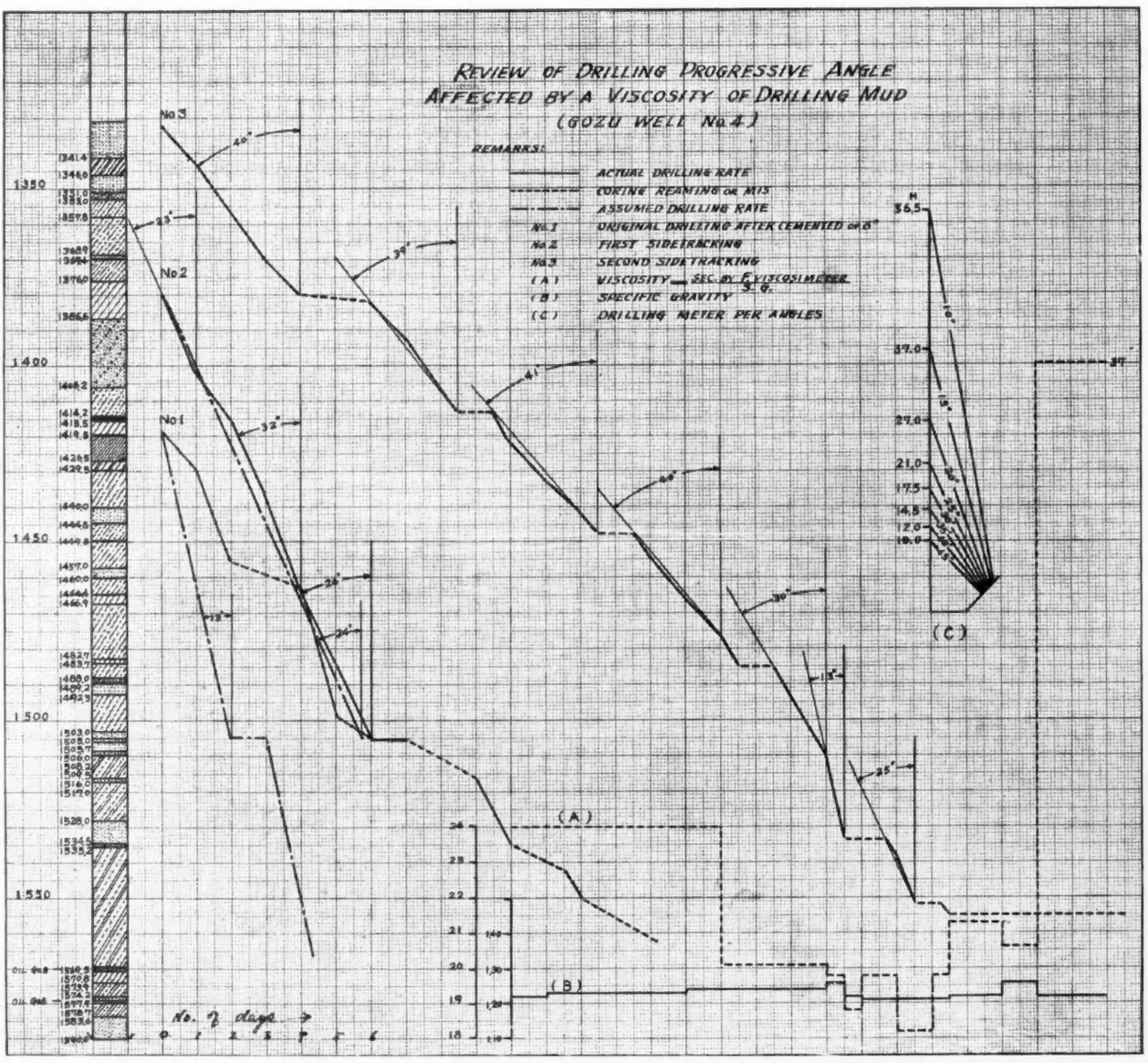
At 1590 meters the well was tested after the insertion of a 4½-inch oil string and 2½-inch tubing, and we obtained 400,000 cubic feet of gas and some oil per day. But on account of the above condition of the hole, the oil string and tubing together were sheared off at the lower end of the six-inch casing while testing. The six-inch casing bent at the lower end too.

No. 2 *Drilling Curve.* This was the first sidetracking after losing the original hole. The rate of drilling was lower than the previous one as the drilling angle averaged 24 degrees in assumption. Nevertheless, successive trouble through caving was repeated each time when changing the bit. The result was to renew the hole again.

No. 3 *Drilling Curve.* For this attempt at sidetracking, the mud mixing plant was moved close to the well. A special blue clay which had a high degree colloidal value was selected for artificial mud. The specific gravity of the mud and the viscosity (by funnel viscosimeter) were measured in each shift periodically to keep the mud in a high colloidal state, as recorded in the diagram.

During the above procedure we succeeded in cementing a 4½-inch casing in the liner system at a depth of 1550 meters.

With regard to the angle of drilling rate and the desirable condition of the hole, the success mainly depends upon the effectiveness of viscous mud, though we are unable to state any more before the completion of this well, since we are not adapting directional drilling methods any more.



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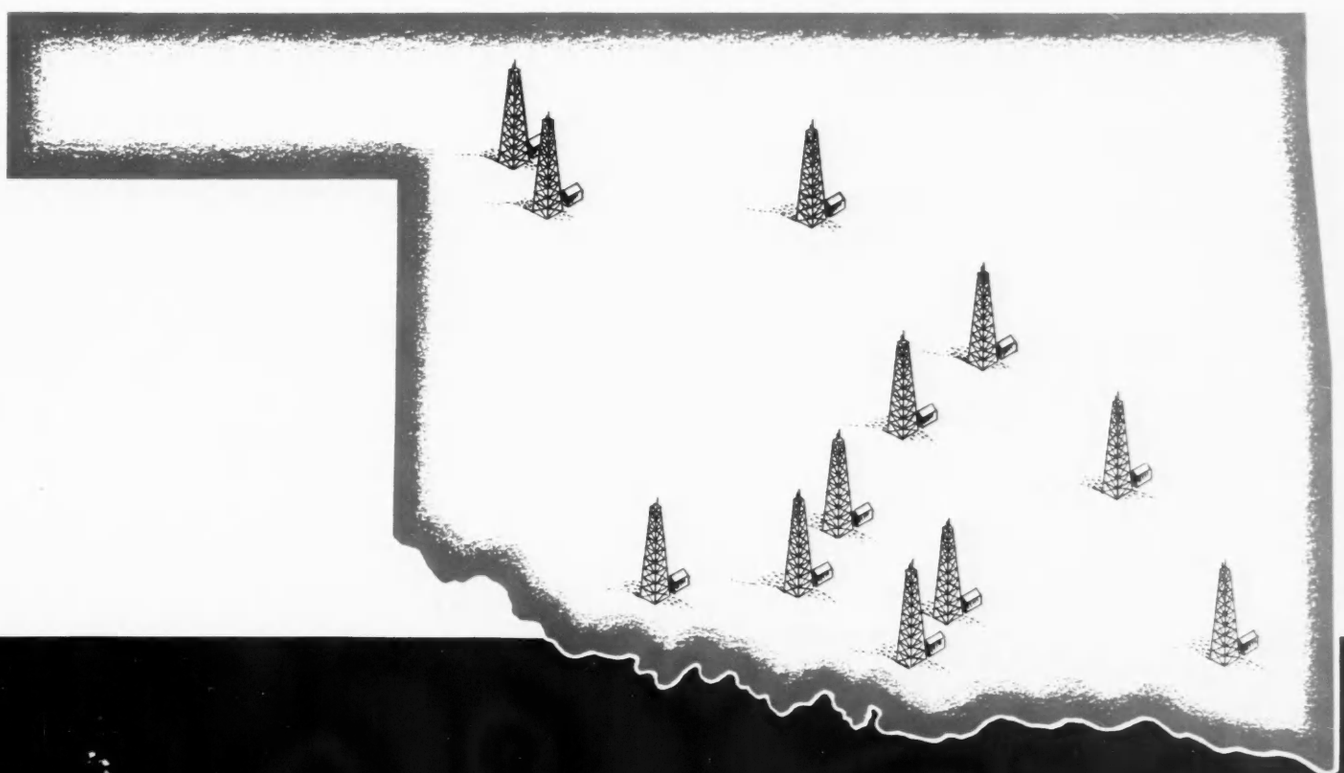

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HIGH YIELD POINT . . .
WITH HIGH DUCTILITY

STATEMENT RELATIVE TO

Estimation of Developed Petroleum Reserves

By M. ALBERTSON, Research Engineer,
Shell Petroleum Corporation

THE purposes of this statement, presented at the Houston Meeting of the American Institute of Mining and Metallurgical Engineers, October 10, 1935, are to define a problem that exists in regard to the estimation of developed petroleum reserves, and to analyze the problems in an abstract manner, and to discuss it as an introduction to certain papers that followed on the program. Some of these papers are presented on following pages of this issue of THE OIL WEEKLY.

The problem is to devise and develop a suitable procedure to permit more accurate estimates of developed petroleum reserves. Part of the problem is to make such estimates available earlier in the life of any particular pool.

THE problem of securing more accurate estimates of developed petroleum reserves existed prior to curtailment of production. With curtailment, however, the problem became an acute one. Some of the more prominent reasons for the acute nature of the problem are as follows:

1. The standard method of estimation depended on production decline curves. This method is inapplicable while curtailment prevails and available methods are insufficient.

2. The retarding influence which wide open flow conditions imposed upon over-development is absent. Great losses of capital by over-development can now occur before realization of the true situation occurs, or before effective steps can be taken to stop such wastage. This increases the need for early, accurate estimates.

3. Above ground stocks have diminished and the equivalent of such supply tends more and more to be retained underground in the natural reservoirs. It becomes increasingly necessary to know accurately the amount of these stocks.

Perhaps, it is of interest to direct attention to an additional point which is of different nature. Improved accuracy of reserve estimation can only be obtained by closer scrutiny of the factors which determine recovery. This examination and the resulting efforts to measure the effect of these factors in terms of ultimate recovery must tend to improve ultimate recovery.

The statements regarding the acute nature of the problem also indicate to some extent the importance of the problem and the necessity of finding a solution. Developed reserves of the industry, and of individual operators, are one of the great factors which properly should determine exploration and development policy. It is obvious that the importance of a solution would justify great effort.

The engineer responsible for advising his company will do well to keep in mind the recommendation of slow orderly development and the accumulation of the maximum information early in the pool's life as a sound policy to adopt and insist upon. A sound estimation of reserves cannot be made unless complete information is obtained from the start and a sound development and production policy is not possible without analysis of such data. If mistakes are made in this phase of a field's history, the engineer advising will bear the brunt of them regardless of who made the decision that developed into errors.

Since the decline curve method became inapplicable, the volumetric methods has become the chief method. It depends on the factors of productive formation volume, porosity, saturation, and recovery.

Brief discussion of the four factors necessary for application of the volumetric method is of interest. The increased efficiency of core recovery, the standardization of porosity determinations and the use of electrical logging devices permit rather close and accurate determinations of the first three factors. Geological assumptions of conditions existing between points of known conditions can be made that will be acceptable as to accuracy by all but the super-critical. It is of interest to note that relative reserves for tracts within the usual type of sand reservoir, and many others as well, offer no particular problem to current methods. In such cases, cancellation of the recovery factor permits comparative determinations with suitable accuracy. Thus the estimation of comparative reserves of various tracts, as required for proration purposes, can now be readily accomplished with acceptable accuracy. This has been fully demonstrated by experience. In proration problems, the task of reserve estimation is great-

ly simplified and opportunity to assure accuracy is given by periodical changes in allocation. Comparative estimates, while of interest in connection with the problem here discussed, are essentially not a part of the problem. Estimates of absolute quantity constitutes the problem. This requires determination of the recovery factor. We then have to deal with the actual value of the recovery factor and its determination at different stages of the pool's producing life. A summation of the present accuracy of the determination of this factor may be stated as follow:

a. When but one or two wells have been drilled —Qualitative.
b. When some production has been taken from the pool and its approximate outlines are known—Semi-quantitative.
c. When the reservoir reactions are susceptible of accurate measurement—Quantitative.

At the last stage of estimates, the predictions of reserve should be within plus or minus ten per cent correct for the prevailing conditions.

Weakness of Methods

Broadly considered, methods of reserve estimation and the data for such estimates have never been sufficient to meet the full need for accurate estimates. Some weaknesses of the decline curve method were as follows:

1. Only an average expectation could be forecast. The actual quantity recovery usually varied considerably from the estimated amount.

2. Decline curve methods cannot be applied to a particular field, with satisfactory assurance, until a substantial part of the producing life of the field has passed. Thus, during the development period, when accuracy is most required, the method is weak.

3. Decline curve methods do not include, in any satisfactory manner, the influence of changes in production technique.

The chief weakness of the volumetric method has already been indicated as determination of the recovery factor. The difficulty of determining the saturation factor also warrants close attention. Under some conditions, determination of the recovery factor may make the use of a saturation factor unnecessary.

The problem is to bring the art of reserve estimation to a higher plane of development. Thorough consideration must include every factor which influences petroleum recovery. There is thus included effects of future changes in the technique of petroleum extraction. The problem includes the entire technique of petroleum recovery methods, and also those parts of the legal, political, and economic fields which influence petroleum recovery technique. An instance of profound change by these outside influences is found in the recent one from open flow to restriction. In the old method of producing at capacity, the field demonstrated its characteristics at an early time, and the brake could be applied to prevent over-development and economic suicide. At present with percentage recovery from the field entirely different, as compared to the time interval, errors in policy are not so readily evident early in the pool's life. It, therefore, becomes more imperative to stop, look, and listen before decisions as to policies are made.

Looking backward for a moment, it may be noted that estimation of reserves by the production decline curve method was a procedure whereby a portion of the declining rate of production from one or more wells was mathematically treated so as to indicate future recovery. The method became suitable for general use only after assembly of volumes of data. The rate of decline method sums up the total effect of all factors which have influenced recovery. It is thus a short cut method. Is it possible to find a suitable method of measuring one or more significant groups of factors while operating at curtailed rates?

Recovery Factors

We must find the quickest possible accurate determination of the recovery factor. Efforts directed to this end are being made and may prove of material assistance even if no complete integrating step is found possible. Judging from past improvements along this line of endeavor, we may expect to see the future yield the answer at a much earlier date than would be expected at present.

Since quantity of oil recovered is a summation of the quantities due to each factor which influences recovery, under the existing conditions, an effort has been made to list all factors. The list is first made by groups. It is as follows:

A. Quantity of oil in the productive formation.
B. Energy available to move oil to the wells.
C. Loss of energy other than in movement of oil.
D. Efficiency with which energy is consumed in movement of oil.
E. Loss of oil and gas due to leakage from the reservoir.

Each of these groups of factors may be elaborated as follows:

A. Quantity of oil in the productive formation depends on:

1. Volume of the reservoir rock;
2. Porosity;
3. Saturation.

B. Energy available to move oil to the wells:

1. Energy of gas, oil, and water, due to pressure:
   a. Without expansion;
   b. By expansion of each fluid;
2. Energy of gravity acting directly;
3. Molecular energy of gas, oil, and water, to displace oil from reservoir rock;
4. Artifically supplied energy.

C. Loss of energy other than in moving of oil to the wells:

1. Escape of gas, oil, and water pressure without oil recovery;
2. Gravity may move oil from the wells as well as to them;
3. Escape of gas and water without exerting their molecular energy to move all;
4. Energy made unavailable due to loss of heat in reservoir, by solution reactions and changes of state.

D. Efficiency with which energy is consumed in movement of oil:

1. Well spacing;
2. Rate of oil recovery;
3. Permeability of sand. (Shooting, acid treatment, mudding of sand.);
4. Gas-oil ratio;
5. Water-oil ratio;

[*Continued on page 43*]

A Method of Estimating Oil and Gas Reserves

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THIS paper, which was presented October 10, 1935, at the Houston Meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, describes a method of estimating the initial quantity of oil and gas present in a reservoir. The method is based on field operating data and the properties of crude oil-gas mixtures, and is unique in that it is entirely independent of sand volumes and formation porosities.

IN the management of oil properties, it is always desirable to know the future behavior of oil wells and oil reservoirs. Some estimation of the quantity of oil and gas that will be produced must be made in order to make decisions on possible returns on investments in lifting equipment, drilling of additional wells, and other operating expenditures. In new or wildcat areas, operating expenditures are considered highly speculative, but in the completion of partially drilled and the operation of producing fields it is good business to remove as much speculation as possible. An accurate knowledge of oil and gas reserves in such cases would be a solution of many management problems.

The term "oil reserves" usually signifies the future ultimate recovery without specifying the method of production. Thus with changing methods and innovations in the production industry, reserves of any definite reservoir may be increased by increasing the portion of oil recovered. The usual reserve estimates are made by comparisons of well and formation characteristics, by using a percentage recovery on the oil content of the formation volume using porosity data, by extending production curves on nonprorated wells, or by extending bottom hole pressure-production curves. The most reliable method would appear to be one that would estimate the initial quantity of oil and gas present and then obtain percentage recovery values for various productive methods and formations from experience.

It is the purpose of this paper to describe a method of estimating the initial quantity of oil and gas present in a reservoir. The method is based on field operating data and the properties of crude oil-gas mixtures. The principles involved, the data required, the assumptions necessary, and an example of the method will be given. The method is entirely independent of sand volumes and formation porosities.

Principles of Method

The method of estimating the initial quantity of oil and gas present is based upon the premise that the volume occupied by oil and gas in the reservoir is constant and that a mixture of crude oil and gas will behave the same in the reservoir as in the laboratory under similar conditions of temperature and pressure. The pressure on a sample of reservoir oil is released in the laboratory and the quantity of gas evolved is measured. These data along with other information make it possible to use the field oil and gas production quantities and reservoir pressures to predict the quantity of oil which must be present in the reservoir to cause the observed maintenance of bottom hole pressure.

In order to apply the method the data on the oil and gas production, bottom-hole pressures, and properties of the crude oil-gas mixtures are obtained. The crude oil produced gives one portion of the initial crude present. The gas produced in excess to the gas dissolved in the crude at the initial reservoir conditions come from crude in the reservoir and at a definite number of cubic feet per barrel as shown by the solubility data and reservoir pressure changes. Thus this excess gas accounts for a second portion of crude which was present in the reservoir. When the crude and gas are produced from the reservoir, a space is left, which is occupied by gas vaporizing from the crude in the reservoir with a corresponding drop in reservoir pressure. The volume of this space can be calculated as containing a definite quantity of gas that was evolved from the cude at a definite number of cubic feet per barrel. The cubic feet of gas in the gas phase in the reservoir divided by the gas evolved per barrel of oil gives the barrels of crude that must be present to have maintained the reservoir pressure. This third quantity of crude when added to the other two portions gives the total quantity of crude oil that was initially present. The gas present is then calculated from solubility data and the crude-oil quantity.

There are several variations and detailed auxiliaries in this method of arriving at the quantity of oil and gas present. When the initial quantity of oil is determined it is possible to estimate the change in reservoir pressure for a given production of oil and gas. A paper[1] given six years ago has been found to be based on the same principles as this paper. It described a mathematical solution of the

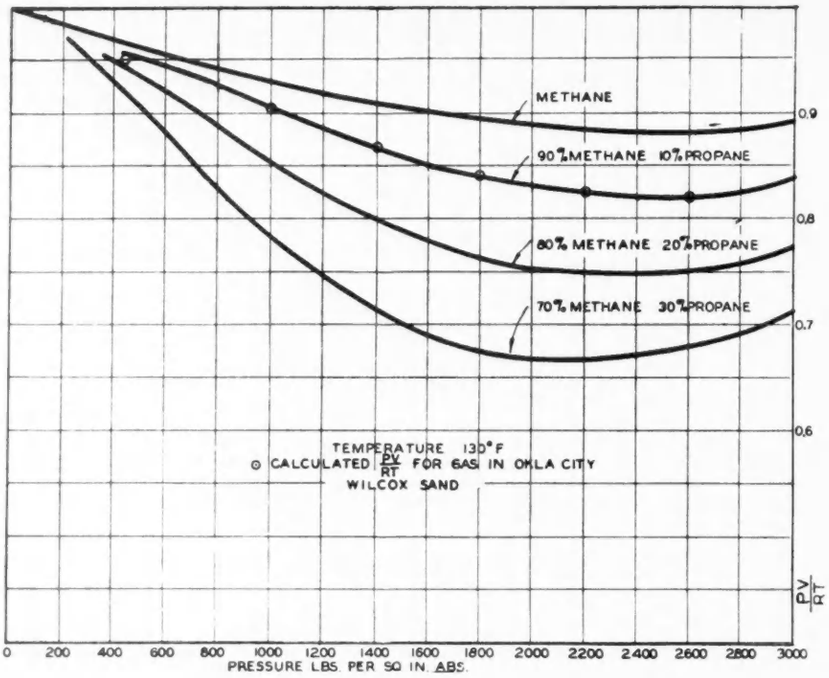

FIGURE 1
Deviation of gases from ideal gas laws.

decline in reservoir pressure with oil and gas withdrawal. The formula presented required the assumption that the solubility curve is a straight line through the origin, it neglected the deviation of the reservoir gases from ideal gas laws, and does not appear to give results comparable with this method.

Assumptions Involved

The major assumption is that the volume of the pore space in the reservoir occupied by gas and oil is constant. In case of a reservoir with a slow water drive, the method is applicable if the decrease in volume of pore space due to the water encroachment is known over a period of time. Also the calculations may be made neglecting the water encroachment and noting the changes in amounts of initial crude calculated over various times in the life of the pool. This method is not expected to be of any value on pools that are under true water drive, such as East Texas.

One assumption that must be made is that the reservoir initially was filled with liquid or that a definite quantity of the reservoir contained gas. In this respect the method is similar to the sand-volume porosity method. If a gas cap is present and the volume of the reservoir initially filled with gas is known, it can be treated independently and will cause no difficulties.

When applying laboratory data to the reservoir, one might say the assumption is made that the oil and gas behave in the laboratory as they do in the reservoir under similar conditions of temperature and pressure. However, the duplication of laboratory results on a sample should be proof that this is a fact and not an assumption.

In the gathering of data such as bottom-hole pressures, oil and gas production quantities, and deviation of gases from the ideal, there are often times when some of the data were not taken. In these cases it is necessary to interpolate or extrapolate data to approximate these values. The bottom-hole pressures as measured should be representative of the entire reservoir volume and it is necessary to assume that the bottom-hole pressures taken in the wells are representative of the reservoir or measurements must be corrected to an estimated average pressure.

Data Required

The data required for calculating the initial quantity of oil and gas present in a reservoir are bottom-hole temperatures and pressures, oil and gas production figures, solubility and shrinkage curves of the reservoir crude oil, and deviation of reservoir gases from the ideal gas laws.

The Bottom-hole pressure and temperature data are taken on most pools at the present time but these data are not always available on older pools. The important pressures are the initial pressure of the pool and the pressure as of some date at which the accumulated oil and gas production figures are available. The average temperature of the pool must be determined but it is not usually expected to vary materially over the life of the pool. As mentioned previously, the bottom-hole pressures are expected to be representative of the reservoir pressure and should be compiled with this idea in mind.

The Oil and Gas Production figures must be known from the time the first well was drilled and accumulated to any chosen time in the life of the pool. The oil quantities are recorded in normal cases and should be rather reliable data. However, the gas produced is not always measured nor is it usually recorded for a pool. In these cases it is necessary for an operator to measure as many gas-oil ratios as possible and fill in the unmeasured ratios according to the test information available. As gas withdrawals are pertinent to bottom-hole pressure declines, it would seem that the industry would soon place gas volume figures on a similar status with crude-oil records. The quantities of oil and gas produced when plotted against average reservoir pressures are expressed in a suitable form for use in the method.

The Solubility and Shrinkage curves are needed to estimate the initial oil and gas present in the reservoir. The most desirable way to secure these data is to obtain a sample of reservoir crude under the initial reservoir pressure by some method such as described by Lindsly[2] or Schilthuis[3] and differentially vaporizing the sample at the reservoir temperature. The quantity of gas evolved and the shrinkage of

the liquid phase should be noted at various pressure intervals. These data are usually plotted as percentage shrinkage and solubility of gas in cubic feet per barrel for vaporizing the sample from any pressure down to atmospheric. If the sample of virgin reservoir oil is obtained, the original saturation pressure of the reservoir can be determined. If no sample of reservoir crude is obtained until a pool has produced considerable oil, a sample at the later date will suffice to give solubility and shrinkage data provided the reservoir pressure is still 600 to 800 pounds. It happens that both solubility and shrinkage curves approach straight lines above 300 to 500 pounds and so the straight-line portion may be extended to higher pressures with fair accuracy. However, the question of initial saturation pressure is unsolved by analysis of such a sample, but a consideration of the bottom-hole pressure decline curve and initial gas-oil ratios will give a basis upon which this saturation pressure may be estimated.

It is advisable to obtain several scattered samples of reservoir oil, especially in a large pool, and the solubility and shrinkage results then should be averaged. The method of differential vaporization may be varied, but the method of vaporizing the sample at constant volume of sample[2] is probably as close to reservoir conditions as one may expect to attain.

The Deviation of the Reservoir Gases from ideal gases is an important factor in the calculation of the quantity of initial crude in the reservoir. The deviation is needed to augment the ideal gas laws when obtaining the quantity of gas contained in the reservoir in gas or vapor space. No data are available on the deviation of reservoir gases at high pressures and prevailing reservoir temperatures. Johnson and Bermald[4] have reported deviations of pipe line gases at temperatures of 40°F. to 80°F. and at pressures up to 1000 pounds per square inch, giving partial analyses of the gases. Sage, Lacey, and Schaafsma[5] have reported the densities of methane-propane mixtures at temperatures from 70°F. to 220°F. and pressures up to 3000 pounds per square inch. Deviations of the mixtures from ideal gases may be calculated from the data.

Either the deviations of the gases must be measured or some method devised that will utilize the above-mentioned data and that on the pure compounds[6 7 8] to give a reliable value for the reservoir gases. An analysis of the reservoir gas at various stages of pressure decline may be obtained by analyzing the gases differentially vaporized or as calculated from crude analyses. One might think that the deviation for the mixture could be obtained by using the analysis of the gas and the deviations for the constituents. The methane-propane data show that if the deviation of the pure methane is used to calculate the volume of the propane in a mixture, the propane appears under some conditions to have a negative volume at high pressure.

A method of calculating the deviation has been devised which, although later it may be proved to be unreliable, is at the present time the best available. The molecular weight of the reservoir gas is calculated and reconverted into the mol percent of propane in methane for this molecular weight. The deviation of the reservoir gas is then taken to be the same as that of the corresponding methane-propane mixture at the same temperature and pressure. Figure 1 shows curves of the deviation of pure methane[6] 90-10, 80-20 and 70-30 mol percent methane—mol percent propane mixtures[5] all at 130°F. The deviations

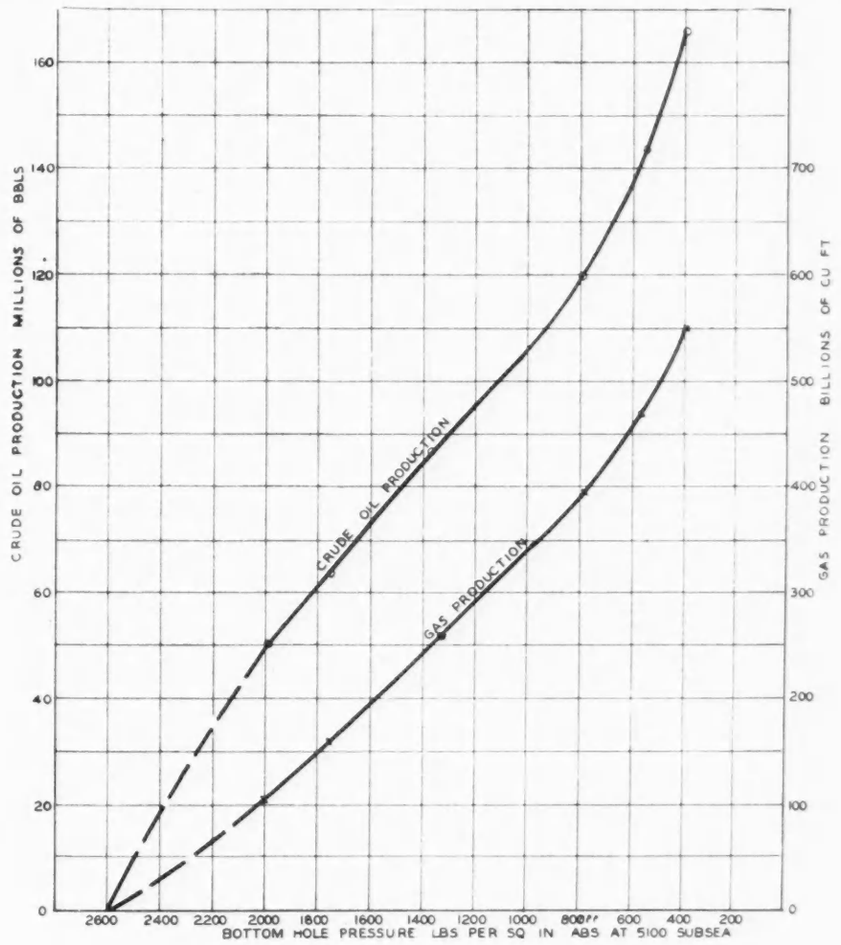

FIGURE 2
Oil and gas production curves Oklahoma City Wilcox Zone.

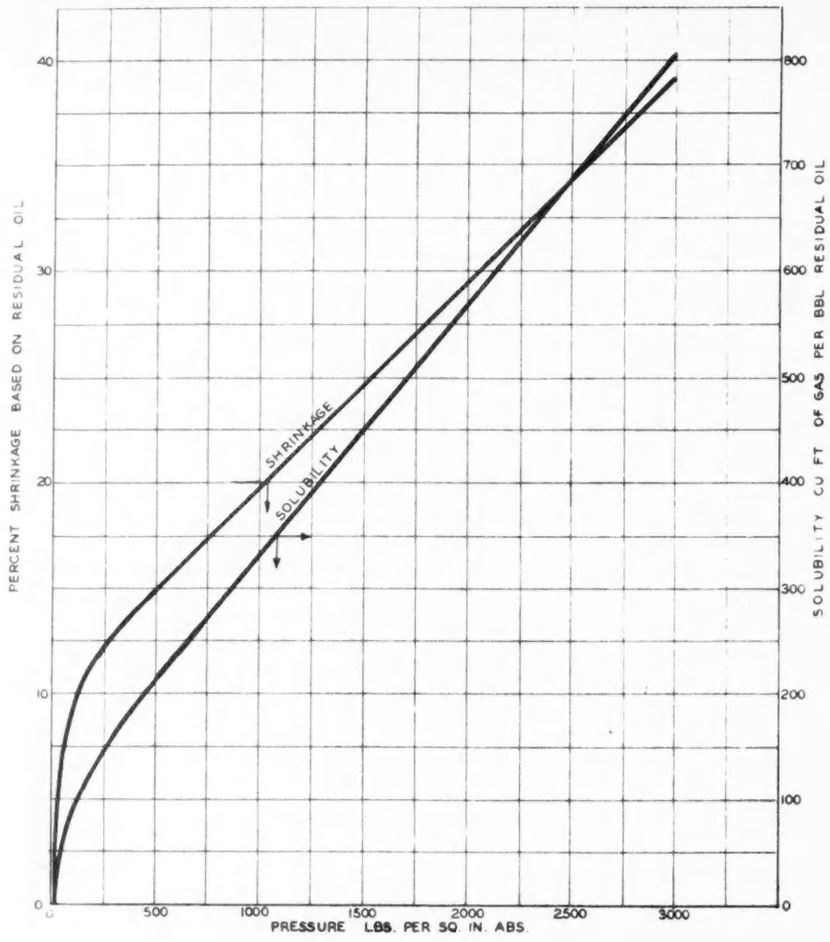

FIGURE 37
Solubility and shrinkage curves Oklahoma City Wilcox Zone.

are greater for gases of higher molecular weight and at higher temperatures the deviations become smaller. The deviations are expressed as values of $\frac{PV}{RT}$, which is unity for an ideal gas and is convenient to use. The deviation of the gas from ideal is really the difference between unity and $\frac{PV}{RT}$ divided by $\frac{PV}{RT}$.

The only verification of this comparison of deviations for gases is by checking for experimental and calculated values within 0.02 for the values of $\frac{PV}{RT}$ for a reservoir gas at 70°F. and pressures in the range of 1000 pounds per square inch. A theoretical reason why this method of estimating deviations might be expected to be fairly close but never exact is that hydrocarbon gases have been shown to have similar deviations at similar reduced states[9]. Gases of the same molecular weight might well be expected to have similar critical temperatures and thus the same reduced temperature. As the constituents of a gas change for the same molecular weight, it will have a different critical pressure and thus not be at the same reduced pressure. However, data are required to clarify the reliability of any such method when applied to mixtures.

Application of Method to Oklahoma City Wilcox Zone

The method of calculating the initial crude oil and gas present in the reservoir is demonstrated by a set of examples calculating the initial crude present in the Oklahoma City Wilcox zone. The data required for the calculation were not always obtained by direct measurement; therefore the results may not be unusually consistent for calculations as of different times during the life of the pool. The examples however, demonstrate a typical problem and the solution.

The assumption of constant volume of the reservoir pore space is known to be fairly accurate, as water has encroached only in a minor degree. The reservoir is assumed to have had no gas cap or free gas at its initial state. There may have been a small gas cap but it was not of any magnitude.

The data needed in the calculations were gathered from various sources. The bottom-hole temperatures were measured as 130°F. to 132°F. and the bottom-hole pressures were obtained by a volumetric averaging of pressures from key wells tested periodically. The initial reservoir pressure was not measured but it was estimated as being 2600 pounds per square inch.

The oil-production figures were taken from state records and the gas volumes were taken partly from measurements and partly from assumed corresponding gas-oil ratios from some wells. The oil and gas production quantities are plotted against bottom-hole pressure on Figure 2.

The solubility and shrinkage curves shown by Figure 3 were obtained from B. E. Lindsly's data[10] on Oklahoma City crude oils. The highest saturation pressure measured was around 1500 pounds, but the straight-line portions of the curves were extended to higher pressures. It should be noted that the shrinkage values are not plotted in the usual manner of percentages based on the saturated sample. The percentage shrinkage based on the residual oil is a more consistent unit and is interpreted as meaning that a shrinkage of 20 percent is a total of 120 parts liquid and 100 parts residual oil at 60°F.

The deviations of the gases from ideal gases were calculated by the method proposed above. The an-

TABLE 1

Calculations of Initial Oil and Gas Content in Oklahoma City Wilcox Zone

Col. No.		Units	Calculations Made from Reservoir Conditions as of Various Dates					
			7-1-32	1-1-33	7-1-33	1-1-34	7-1-34	1-1-35
1	Crude oil produced	Million bbl.	50.0	65.3	87.5	119.2	144.0	167.0
2	Gas produced	Billion cu. ft.	110.0	163.0	260.0	393.0	480.0	545.0
3	Bottom-hole pressure	Lb. per sq. in.	1990.0	1740.0	1360.0	790.0	545.0	393.0
4	Gas dissolved in crude	Cu. ft. per bbl.	568.0	509.0	420.0	282.0	225.0	188.0
5	Gas evolved	Cu. ft. per bbl.	147.0	206.0	295.0	433.0	490.0	527.0
6	Correction factor for deviation from ideal gases	No units	0.83	0.84	0.87	0.92	0.95	0.97
7	Dissolved gas in produced crude oil	Billion cu. ft.	35.7	46.7	62.5	85.2	103.0	119.0
8	Excess gas produced	Billion cu. ft.	74.3	116.3	197.5	307.8	377.0	426.0
9	Vol. of 1 std. cu. ft. of gas at reservoir conditions	Cu. ft.	0.00699	0.00809	0.0107	0.0195	0.0292	0.0413
10	Vol. produced oil and dissolved gas at res. conditions	Million cu. ft.	380.0	496.0	665.0	906.0	1093.0	1270.0
11	Vol. occupied by excess gas when dissolved in reservoir crude	Million cu. ft.	170.0	266.0	451.0	704.0	861.0	975.0
12	Reservoir vol. of total oil and gas produced	Million cu. ft.	550.0	762.0	1116.0	1610.0	1954.0	2245.0
13	Vol. of gas in the gas cap	Billion cu. ft.	117.7	131.3	132.7	83.5	72.6	57.5
14	Crude necessary to produce gas cap gas	Million bbl.	801.0	637.0	449.0	193.0	147.0	109.0
15	Crude necessary to produce excess gas	Million bbl.	505.0	564.0	669.0	710.0	769.0	808.0
16	Total crude (residual) initially present	Million bbl.	1356.0	1266.0	1205.0	1022.0	1060.0	1084.0
17	Initial volume of gas when dissolved in crude	Million bbl.	477.0	446.0	425.0	360.0	374.0	384.0
18	Initial fluid present in reservoir	Million bbl.	1833.0	1712.0	1630.0	1382.0	1434.0	1468.0

Cu. ft. gas per cu. ft. liquid when dissolved in reservoir crude = 437.0
Cu. ft. of gas vaporized when vaporizing initial crude from 2600 to 14.7 lb. = 715 cu. ft. per bbl.
Percent shrinkage based on residual crude when vaporizing intial crude from 2600 to 14.7 lb. = 35.4; i.e. Residual = 100%
Residual crude = crude at 60°F. which had been vaporized down to 14.7 lb. and 132°F.

alyses of reservoir gases were obtained partly from Lindsly's vaporization data and partly from laboratory data. The circles approaching the 10 percent propane 90 percent methane line of Figure 1 are the deviations calculated for the gases at the various pressures and 130°F.

The initial crude present is calculated from the first production down to six different times at intervals of six months. The dates, pressures, production quantities, other data, and essential calculations are all given in Table I. Figure 4 will be used along with a discussion of the various steps in the calculation to illustrate the physical significance of portions of the method.

The solution of the problem is the calculation of the amounts of crude oil required to furnish the crude produced, to provide the gas produced in excess to the gas dissolved in the produced crude, and to provide the gas entering the vapor space still maintaining the bottom-hole pressure. The vapor space is generally located throughout the reservoir, but when the gas segregates high on a structure it is often referred to as a gas cap.

Columns 1 to 6 inclusive of Table 1 are data taken from the figures. The gas dissolved in the crude oil (column 7) is calculated by multiplying the barrels of produced crude by 715, the quantity of gas in solution at the initial condition. Although part of the gas was vaporized by flash, the differences in temperature, etc., makes the value of 715 appear to be as reliable an estimate as any. The gas produced minus the gas in solution gives the excess gas (column 8) that was produced but that came from crude in the reservoir. The volume of the produced crude in barrels multiplied by 5.61 and by 1.354 gives the cubic feet of reservoir space (column 10) occupied by the oil and dissolved gas. This portion of the reservoir is shown graphically in Figure 4 as A and B.

The gas produced in excess to the dissolved gas came out of solution from the crude oil. The solubility and shrinkage curves show that 437 cubic feet gas at standard conditions are required to make one cubic foot of reservoir liquid. Therefore, the cubic feet of excess gas (column 8) divided by 437 gives the volume (column 11) occupied by the excess gas when it was in the reservoir, section C, Figure 4. The sum of columns 11 and 10 give the total reservoir volume of the produced oil and gas, column 12.

The next part of the problem is to find the gas present

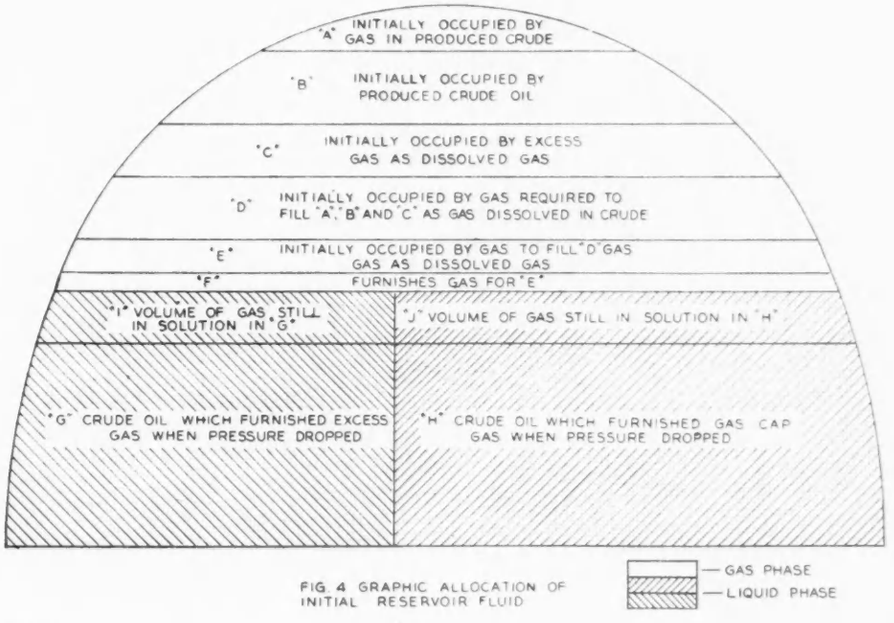
"A" INITIALLY OCCUPIED BY GAS IN PRODUCED CRUDE
"B" INITIALLY OCCUPIED BY PRODUCED CRUDE OIL
"C" INITIALLY OCCUPIED BY EXCESS GAS AS DISSOLVED GAS
"D" INITIALLY OCCUPIED BY GAS REQUIRED TO FILL "A", "B" AND "C" AS GAS DISSOLVED IN CRUDE
"E" INITIALLY OCCUPIED BY GAS TO FILL "D" GAS AS DISSOLVED GAS
"F" FURNISHES GAS FOR "E"
"I" VOLUME OF GAS STILL IN SOLUTION IN "G"
"J" VOLUME OF GAS STILL IN SOLUTION IN "H"
"G" CRUDE OIL WHICH FURNISHED EXCESS GAS WHEN PRESSURE DROPPED
"H" CRUDE OIL WHICH FURNISHED GAS CAP GAS WHEN PRESSURE DROPPED
FIG. 4 GRAPHIC ALLOCATION OF INITIAL RESERVOIR FLUID
GAS PHASE
LIQUID PHASE

FIGURE 4

Graphic allocation of initial reservoir fluid.

in the vapor phase or in the gas cap. The volume of one standard cubic foot of gas when changed to reservoir conditions is $1 \times \frac{592}{520} \times \frac{14.7}{P} \times \frac{PV}{RT}$.

The volumes of one standard cubic foot of gas calculated in this manner are shown in column 9. The volume of gas in the gas cap then is equal to the cubic feet of space vacated by oil and gas produced divided by the cubic feet of space required for one standard cubic foot of gas. In addition to this gas, however, is the gas that goes to fill the space created by the gas going out of solution to fill the gas cap. In addition again is the space caused by shrinkage of crude when giving up the gas going to fill the space created by the first vaporization to fill the gas cap.

This situation can be solved by trial and error but it is of a form suitable to a simple mathematical solution.

Let $\times$ = amount of gas in the gas phase in reservoir (Std. cu. ft.).

Let $a = \frac{\text{volume of produced oil and gas in reservoir}}{\text{volume of 1 std. cu. ft, gas when in reservoir}}$

Let b = 437 x volume 1 std. cu. ft. gas when in reservoir.

Then:

$$\times = a + \frac{a}{b} + \frac{a}{b^2} + \frac{a}{b^3} \text{ etc.} = \frac{a^*}{\left(1 - \frac{1}{b}\right)} \qquad \text{(Equation 1)}$$

*Value of above coverging series.

In Figure 4, the gas a is contained in space A. B. C, gas $\frac{a}{b}$ is contained in D, $\left(\frac{a}{b^2}\right)$ is contained in E, and $\left(\frac{a}{b^3}\right)$ is contained in F, etc. The solution of the quantity of gas in the gas cap becomes for the first example:

$$\text{Volume of gas in million cu. ft.} = \frac{\frac{550}{0.00699}}{\left(1 - \frac{1}{0.00699 \times 437}\right)} = 117.7$$

Column 13 gives the values for the several examples.

The completion of the problem is simply the division of the excess gas and the gas in the gas cap by the number of cubic feet contributed by each barrel of crude (column 5) when the pressure was lowered from 2600 pounds down to the then existing reservoir pressure.

The crude necessary to furnish 74.3 billion cubic feet of gas at the rate of 147 cubic feet per barrel is 505 million barrels—represented by section G in Figure 4. The crude necessary to furnish 117.7 billion cubic feet of gas cap gas at rate of 147 cubic feet per barrel is 801 million barrels of crude—represented by section H of Figure 4.

The total crude oil, in millions of barrels of residual crude, is given by adding columns 1, 15 and 16, or the three contributing factors in the reservoir behavior. The remainder of the space was occupied by gas dissolved in the crude oil. Spaces I and J of Figure 4 represent the gas still in solution in crude G and H. Column 17 gives the total residual oil, column 18 the total barrels of gas when dissolved in the crude oil as a liquid, and column 19 gives the total fluid initially present in the reservoir.

If the theory and the data were perfect one would expect to calculate identical initial volumes. However, owing to the many variations, the values are not identical but are of the same order of magnitude. The lack of sufficient data in the earlier life of the pool, any possible variation of the initial bottom-hole pressure and saturation pressure from 2600 pounds, and the possible presence of a small gas cap all tend to give more credit to the later data. Therefore, a value of 1,050,000,000 barrels residual oil and 372,000,000 barrels or 750 billion cubic feet of dissolved gas may be taken as the content of the Oklahoma City Wilcox sand.

Prediction of Reservoir Behavior

One of the values of calculating the initial oil content of a reservoir is that the data also may be used to predict the drop in bottom-hole pressure for a given oil and gas production. If these calculations of oil content and pressure decline are made early in the life of the pool, they are particularly valuable in predicting flowing life and probable potential of wells.

For brevity, only an outline of the method of predicting the reservoir pressure will be given. The calculation is based on the same data and logic as the oil-content calculation. The only added assumption to be made is the ratio at which the oil and gas will be produced. By making this assumption for a definite quantity of oil to be produced, at some future date the total accumulated oil and gas production is known.

The main equation to be solved is:
(total reservoir oil—produced oil) x gas evolved from initial saturation pressure down to the predicted pressure equals the excess gas plus the volume of gas in the gas cap. (Eq. 2).

The volume of gas in the cap is equal to the reservoir volume of the produced gas and oil divided by the reservoir volume of one standard cubic foot of gas plus the volume of gas required to fill the space created by vaporization or shrinkage of the crude to provide gas for the first volume plus the gas required to fill this newly formed space, etc. The same equation (Eq. 1) may be used to solve the volume of gas present in the cap, but it is necessary to do this for several assumed pressures. The volume of gas in the gas cap and corresponding pressure that will satisfy the main equation (2) gives the reservoir pressure that will exist after the assumed production of oil and gas. This pressure is as accurate as the calculated initial oil content and the assumed ratio of oil to gas.

This rough outline of the procedure could be formulated and a mathematical solution presented. However, because of the complexity of such formulas and of the fact that it is worth while for one to reason the problem through during the solution, no attempt is made to present the problem in this manner. One is much less likely to make gross errors or to attempt a solution without a thorough understanding of the problem being solved when the solution is made in the manner described.

Application to Ultimate Production

A knowledge of the quantity of oil and gas initially present in the reservoir does not specifically answer the question regarding crude-oil reserves. Cal-

culations of this kind and experience should place the crude-oil reserve estimates on a more reliable basis.

The quantity of gas to be produced from a reservoir is fairly accurately determined by the calculations. With the exception of such variations as pulling a vacuum on a reservoir and irregularities in bottom-hole pressure at the ultimate production, the gas produced will approach the total quantity of gas dissolved in the crude above atmospheric or the final reservoir pressure. For instance, an ultimate gas production in Oklahoma City Wilcox of 700 of the 750 billion cubic feet of gas initially present would be considered a fair estimate of the gas reserves.

In using the initial quantity of oil present in the reservoir to predict reserves, a recovery factor similar to the one used in the sand-volume method is the best way known at present. This recovery factor should be stated definitely as meaning recovery of residual crude oil or recovery of initial fluid. Recovery factors in the range of 20 to 40 percent have been commonly used in estimating reserves. At Oklahoma City, the Wilcox zone has been estimated to have an ultimate recovery of 250 million barrels of oil. Based on 1050 million barrels as the initial crude, this recovery would be 24 percent based on residual crude. However, the recovery based on the percentage of initial fluid produced would be 43 percent.

The advantages of making these calculations of initial reservoir fluid over the previous methods are that it gives a reservoir content independent of sand volumes and porosities, which may be so irregular that average values are difficult to obtain. The solubility data and the oil content give the gas reserves directly.

An accumulation of data on recoveries in which both the oil and gas measurements have been made and solubility data obtained should give a more fundamental basis for comparing oil recoveries or fluid recoveries from types of formations and by specific methods.

Conclusions

A method of calculating the initial oil and gas content of reservoirs based on oil and gas production data and properties of crude-oil-gas mixtures has been presented and shown to be applicable to the present problems of the industry. The need for gas measurements on producing oil pools is stressed by the place that gas volumes play in the calculations. The initial content of a reservoir gives the gas reserves directly and provides a more reliable method for estimating oil reserves. The application of the described principles allows the calculation of the future reservoir pressure for a given oil and gas production.

The writer wishes to acknowledge the assistance of W. H. Barlow in the preparation of this paper.

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Statement Relative to Estimation Of Developed Petroleum Reserves

[*Continued from page 36*]

6. Locus of gas, water, and oil expansion;
7. Viscosity of oil;
8. Specific heat and latent heat;
9. Molecular energy.

E. Loss of oil and gas due to leakage:

1. Poor quality of casing;
2. Normal corrosion of casing;
3. Improper casing methods;
4. Entrance of surface water.

It is seen that although the factors may be arranged into five groups, the total number of factors is large. Enumeration of the factors and their classification into groups of factors is sufficient to strongly suggest that if accurate estimation of developed reserves has to await quantitive determination of all factors, it will never be possible. If this is true, hope of satisfactory estimates depends on finding the relationship between recovery and one or more groups of significant factors which may be readily determined. Below are some suggestions for exploration:

1. Fractional part of total energy consumed per unit of oil recovery.
2. Determination of oil recovery per unit retreat of oil from oil reservoir plus more accurate estimation of reservoir size and content. (Water surveys, gas surveys, electrical logging of formations, better core recovery, etc.)
3. Rate of reservoir pressure decline per unit of oil recovered, and influence of rate of recovery upon total recovery.
4. Oil recovery per A. P. I. gravity unit under reservoir conditions of temperature and pressure.
5. Average gas-oil ratio and rate of variation per suitable time unit for life of field.
6. Combinations of the above factors pertinent to the particular field.

The scope of this paper is necessarily broad in nature and the factors suggested and discussed briefly are complex. It is probable that many of them can be investigated at the same time and their results expressed in terms of each other. Common effort is necessary to make the advances essential to solve field-wide problems and since specific problems whose answers are obtained without the effect of contributing factors being known are subject to grave error, it is imperative to have complete operator cooperation in collecting and analyzing data from any pool. Today, the engineer finds himself being challenged by the industry to advise it as to what path to follow in new development and it behooves the engineer to fully advise the industry what it must do to cooperate with him and permit him to arrive at sound conclusions. We must not permit our work to be classified as black magic or glorified guesses, but rather must we admit our shortcomings and intelligently attack the problems confronting us.

Acknowledgments:

The writer is particularly indebted to F. E. Heath, for assistance and criticism. Valuable suggestions have also been received from C. E. Reistler, Jr., and T. V. Moore.

SINCLAIR–PLANNED DRIVES GET 16,077 NEW CUSTOMERS IN DAY

CARS SWARM into Sinclair dealer stations as Sinclair-Planned Drives brought 16,077 new customers for 1,190 dealers in one day. Upper photo shows P. J. Everson's station in Lakeland, Fla., where sales jumped 200% as compared to the same day the previous week. D. W. Haines (lower photo) increased his sales 125%. The way in which Sinclair sales-building plans click is one of the reasons why the Sinclair franchise is so valuable to dealers, distributors and jobbers. For full details of the value of the Sinclair franchise to you, write to Sinclair Refining Company (Inc.), 630 Fifth Avenue, New York City.

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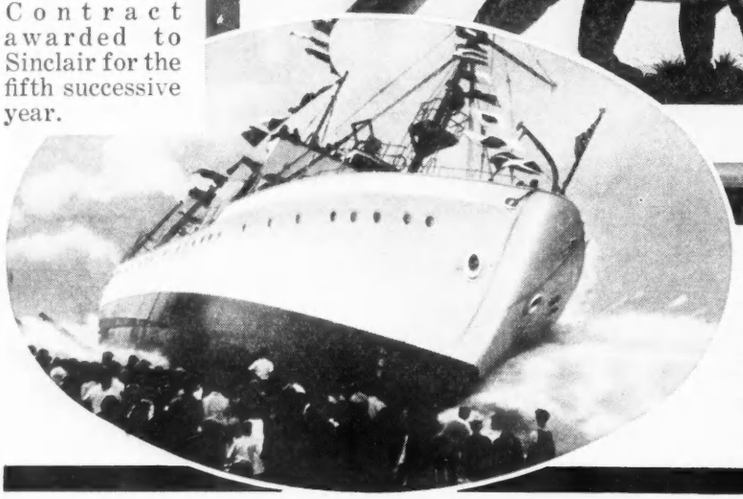
(Below) **LAUNCHING** new Coast Guard Cutter for service on Lake Erie. The Coast Guard relies on Sinclair oils supplied under the U. S. Navy Oil Contract awarded to Sinclair for the fifth successive year.



NEWEST Sinclair poster tells motorists about the 10% to 27% more smooth power in Sinclair H-C Gasoline. Over 10,000 of these posters, plus newspaper and magazine advertising and the Greater Sinclair Minstrels radio program are building sales this fall for all those who handle Sinclair products.

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Markets Firm

MID-CONTINENT PRICES REMAIN STEADY AT NEAR PEAK LEVELS

THE oil markets have continued firm throughout the country east of California, despite the depressed prices on the Pacific Coast and seasonal decline of consumption. Last week prices remained unchanged, generally. The Mid-Continent tank car market has been steady, in fact, for about a month, with quotations near the peak levels of the year.

The present situation is in striking contrast with that prevailing a year ago. In late September and early October of last year the Mid-Continent tank car market suffered a collapse that sent prices to the lowest levels on record in some instances, as in East Texas. The breakdown of the markets at that time resulted primarily from a serious weakening of control in East Texas, in which hot oil output ran around 100,000 barrels daily. Federal participation in control then was under the oil code, while at present it is under the Connally Act, prohibiting interstate shipment of hot oil.

Currently, hot oil output in East Texas continues around 45,000 barrels daily. It has been averaging around that amount for some months, with minor fluctuations. While such illegal output is a drag on the market, it has not seriously influenced prices, except within Texas borders, since it is confined largely within the state's borders, through action of the federal authorities.

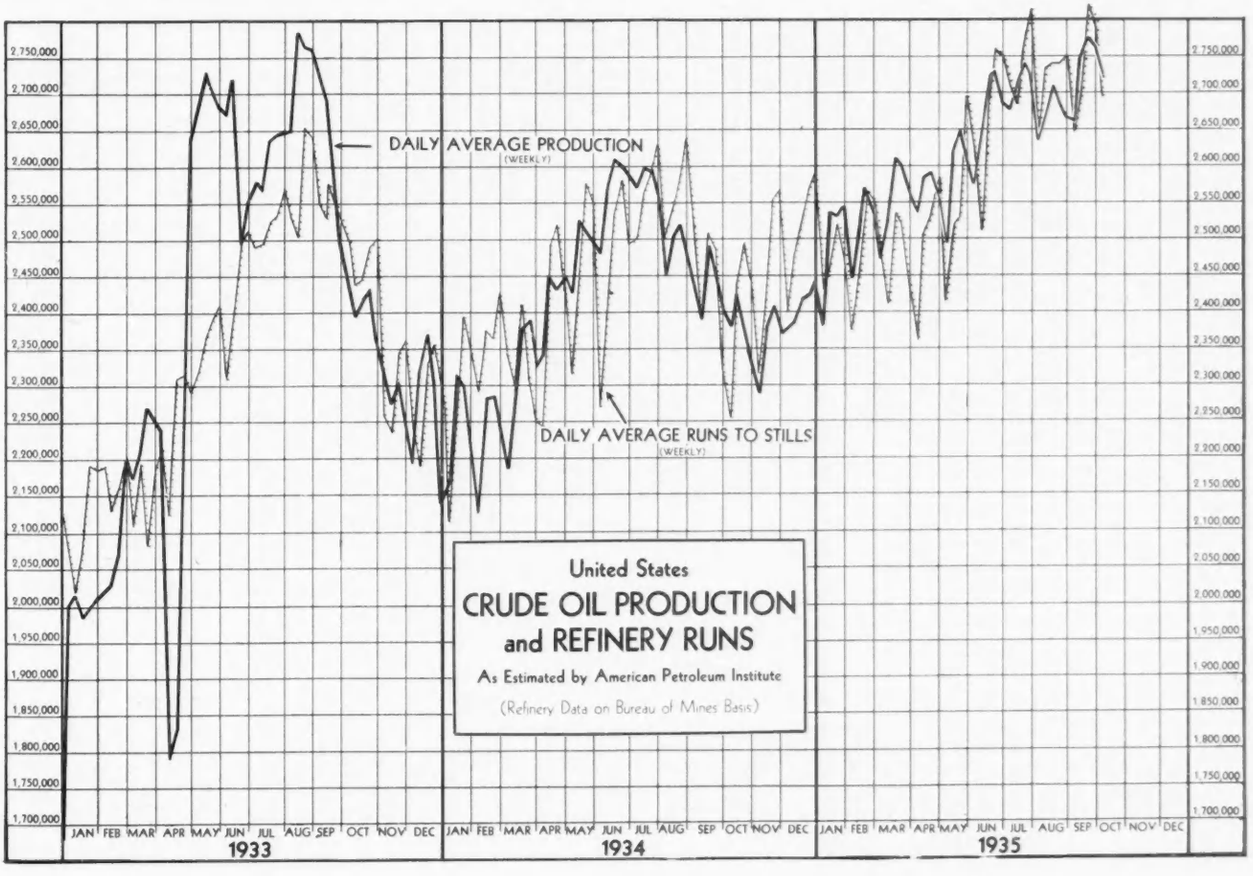
Last week's ruling tank car prices on gasoline at Mid-Continent refineries were about twice as high as at the corresponding time last year. In fact, the conditions in early October last year were so demoralized that there was no orderly market, and gasoline tank car prices in East Texas were as low as two cents a gallon while truck shipments were going at 1½ cents.

Last week the third-grade U. S. motor gasoline, below 62 octane, was bringing 4⅝ cents a gallon in East Texas and North Texas and 4¾ cents in the Group Three (Oklahoma) region. Meanwhile, standard grade, 62-67 octane, was priced at five cents a gallon at East Texas refineries, and at 5⅛ cents in Oklahoma. Premium grade, 68-70 octane, was quoted at 5½ cents in East Texas and at 5⅝ cents in North Texas and Oklahoma.

Kerosene prices in the Mid-Continent, like gasoline prices, have been unchanged for several weeks. The product was quoted at 3¼ cents a gallon in East Texas and North Texas, and at 3⅜ cents in Group Three territory.

Helping to hold Mid-Continent prices steady has been a well sustained demand for gasoline and other products, and an especially strong demand for bright stock, required in making lubricants. There has been considerable speculative buying of the bright stock, it is indicated, with purchasers expecting war developments to stimulate the market and push prices higher.

Another steadying influence has been the noteworthy success in holding refinery operations in line with market requirements. Such restraint has been reflected in further withdrawals from gasoline storage in meeting the demand. Also, crude production has been held down with continuing success



throughout the country, except in California.

California production of crude is generally considered materially excessive. But independent producers continue efforts to hold output down. And some observers are inclined to discount the purported seriousness of the California situation, since some independent refiners have been paying more than major company postings for high gravity crude.

EAST TEXAS WAR

Third grade off slightly and war brewing

GASOLINE price war was brewing among East Texas refiners late last week, with tank truck quotations on third grade motor fuel that is restricted to Texas markets lowered to 3¼ cents per gallon. Further decline in price is forecast, with possibilities of the market disturbance bringing on an early break in retail prices for the state. Gasoline and other refined products qualifying for federal tenders and consigned to interstate markets have not been affected by the internal strife among the plant owners.

Active plants in the district increased to 30 the past week, and all were said to be making deliveries with approved state tenders.

Secret price rebates granted to tank truck dealers and the shift of a number of the large plants from federal tenders to state tenders only abruptly terminated a fairly stabilized market. Considerable speculation has arisen as to why a number of plants have elected to withdraw from the more attractive interstate markets and evade the requirements of the federal tender board. This change took place simultaneously with the reorganization of the federal tender board on duty in East Texas.

Diversion of normal shipments from interstate to intrastate markets automatically led to a surplus of gasoline restricted to Texas consumers.

Reorganization of the states proration staff early in October has been followed by a slight decline in volume of illicit production, according to reports. During the week ending October 7, East Texas refiners were credited with processing about 65,800 barrels of petroleum products daily, or approximately 2000 barrels less than the average maintained the previous week. About 42,500 barrels of the daily runs to stills involved hot oil and confiscated crude. In contrast to the unfavorable refined oil price structure, legally produced crude in East Texas is being eagerly sought by several majors. Empire Pipe Line Company has been particularly active for additional supplies, and after several weeks effort obtained 125,000 barrels of storage oil from Atlas Pipe Line Company at the posted price plus gathering charges. Toronto Pipe Line Company began delivering the former 3000 barrels of crude daily beginning October 1 on contract to remain in force until the close of the year, but is seeking well connections for the equivalent of 1000 barrels daily to assure fulfillment of the contract.

East Texas Tank Car Shipments

Week Ending October 6, 1935

PRODUCTS	No. Cars	Estimated Gallons
Gasoline	568	4,614,895
Fuel Oil	259	2,488,724
Casinghead Gasoline	190	1,648,300
Distillate	86	697,065
Crude Oil	53	485,289
Topped Crude	30	284,789
Gas Oil	34	276,158
Kerosene	28	230,713
Residuum	27	218,625
Naphtha	19	150,365
Lube Oil	1	3,025
Total	1,296	11,097,948
Total Previous Week	1,498	12,705,653
Interstate	552	.....
Intrastate	432	.....
Coastwise	312	.....
Total	1,296	.....

GROUP 3 STEADY

All products but natural gasoline are strong

THE Mid-Continent refined market, with the exception of the naturals, was rocking along at a steady pace with the third grade motor fuels, 62 octane and below, quoted at 4¾ to five cents. The natural gasoline market had developed a slight weakness due to excessive production in the Texas Panhandle. However, increased demand for naturals due to cold weather in many portions of the Mississippi Valley, was offsetting to a great extent the effect of excess production. Prices ranged from four to 4¼ cents for 26-70.

Mid-Continent observers are looking with considerable interest toward the probable effect of the Italian-Ethiopian conflict and reports of renewed interest in American products by French and Italian buyers are being made. Burning oils were steady with a tendency toward greater firmness as domestic fuels remained unchanged. Prices approximately as follows:

Refinery Gasolines: Third grade, 62 octane and below, 4¾ to 5 cents; regular, 63 to 70 octane, 5⅝ to 5⅞ cents; 71 and above octane premium, 5¾ to 5⅞ cents; 60-62, 400 e.p., 62 and below octane, 4¾ to 5 cents; 63-70 octane, 5⅝ to 5⅞ cents; 64-66, 375 e.p., 4⅞ to 5 cents; and 68-70, 350-360 e.p., 5 to 5⅛ cents.

Burning Oils: 42-44 water white kerosene 3⅝ to 3¾ cents; 41-43, water white kerosene, 3⅜ to 3⅝ cents; 38-40 prime white distillate, zero, 3⅛ to 3⅜ cents; 38-40 straw distillate, zero, 3 to 3¼ cents; 32-36 straw gas oil, zero, 3 to 3¼ cents; and 32-36 dark industrial gas oil, 2¾ to 2⅞ cents. Fuel oils 16 to 30 gravity, 60 cents to $1.10 per barrel.

Summary of Wells Completed in the United States
Week Ending October 5, 1935

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total Completions 1935	Total Completions this date 1934
Alabama	...	...	...	...	.....	4	3
Arkansas	3	...	1	2	.....	105	65
California	17	13	...	4	4,495	652	309
Colorado	1	1	...	...	620	9	16
Illinois	...	...	...	...	.....	9	14
Indiana	...	...	...	...	.....	158	130
Kansas	24	16	1	7	28,415	1,070	701
Kentucky	8	5	...	3	98	137	150
Louisiana	15	7	2	6	1,805	556	586
Michigan	16	4	6	6	2,195	424	369
Mississippi	...	...	...	...	.....	16	31
Montana	3	2	1	...	275	125	153
New Mexico	...	...	...	...	.....	216	87
New York	...	...	...	...	.....	...	4
Ohio	17	3	6	8	33	1,113	756
Oklahoma	55	31	3	21	39,235	1,824	1,427
Pennsylvania	4	1	3	...	4	100	245
Texas	189	140	2	47	336,645	9,170	7,484
Utah	...	...	...	...	.....	1	3
West Virginia	10	2	8	...	20	371	279
Wyoming	2	2	...	...	60	56	37
Total this week	364	228	33	104	413,900	16,137	12,955
Total last week	426	259	45	122	433,248	...	...
Total this year	16,137	10,611	1,323	4,204	31,105,123	...	...

Comparison of Permits Granted for New Wells

STATE	Week Ending Oct. 5	Total this Mo.	Total this Year	Total this Date Last Year	1934 Year Total
Arkansas	2	2	47	58	100
California	22	22	725	429	629
Louisiana	13	13	648	641	799
Kansas	24	24	900	746	1,015
Michigan	28	28	545	363	460
Oklahoma	50	50	1,725	1,546	2,045
Texas	123	123	8,476	7,979	10,550
Total	262	262	13,066	11,764	15,598

PRODUCTION IS UP

Domestic output reaches 2,779,275 barrels

THE production of crude oil in the United States for the week ending October 12 was higher than in the previous week, all principal producing areas, with the exception of Texas, showing gains as is usual in the early part of the month. The daily average of 2,779,275 barrels was around 225,075 barrels over the indicated market demand for October as estimated by the Bureau of Mines.

Oklahoma and Kansas both made comparatively heavy runs on this month's allowable quotas to swell the total for each state quite a little over the production of the previous week. Oklahoma with a daily average of 516,625 barrels was 41,175 barrels over the daily output of the previous week and 23,725 barrels over the indicated market demand figure. Kansas with 147,225 barrels per day was 3,775 barrels over the previous week and 1,125 barrels over the demand estimate for October.

Production in Texas again declined as a result of the reduction in allowable quotas, falling this time to an average of 1,020,200 barrels per day. The decrease was mostly noticeable in the East Texas and East Central Texas areas. This makes a general reduction of some 19,000 barrels per day in the East Texas field alone since the new quotas became effective. This reduction now places the output of the state 5300 barrels below the indicated market demand as estimated for October. The production of hot oil in the East Texas field (not included in the above figures) followed the trend of the state as a whole and was estimated to be around 45,000 barrels per day for the week just passed.

The downward trend in production recorded the two previous weeks in California was reversed this past week with an increase of some 21,000 barrels per day over the previous week to reach a daily average of 643,000 barrels per day. This, of course, follows the normal course of that state in making larger runs in the early part of the month, but the result is considerably in excess of the indicated estimates of demand. A fact finding committee of the Emergency Board of Independent California Producers estimated that production there should not exceed 590,700 barrels, while the Bureau of Mines set the indicated market demand for October at 497,700 barrels. The daily average for the past week was thus 52,300 barrels above the Independents' estimate and 145,300 barrels over the recommendations of the Bureau of Mines.

Louisiana recorded a slight increase in both the Northern and Gulf Coast sections of the state, raising the total for the state to 148,800 barrels per day for the week just passed. This is 23,700 barrels above the October demand estimate.

Other sections of the country showed some increases, principally in the Rocky Mountain area (Wyoming), the East-

United States Crude Oil Production

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	BARRELS DAILY FOR WEEK ENDING October 12	October 5
TEXAS—		
Texas Panhandle	58,800	54,800
North Texas	59,400	58,250
West Central Texas	25,500	25,300
West Texas	155,000	152,850
East Central Texas	44,000	46,500
*East Texas Field	426,000	441,400
†South Texas	61,100	59,850
†Texas Gulf Coast	190,400	191,000
*Total Texas	1,020,200	1,029,950
OKLAHOMA—		
Oklahoma City	154,825	131,600
Seminole Area	124,500	118,450
Tatums	4,600	4,550
Lucien	10,200	9,750
Fitts	27,950	19,950
Edmond	6,225	3,400
Others	188,325	187,750
Total Oklahoma	516,625	475,450
KANSAS—		
Ritz-Canton	8,925	9,300
Voshell	4,425	3,575
Nikkel-Hollow	5,775	5,725
Sedgwick	7,325	7,050
Oxford	7,250	4,875
Burrton-Haury	15,925	17,775
Lorraine	7,175	7,375
Others	90,425	87,775
Total Kansas	147,225	143,450
LOUISIANA—		
North Louisiana	26,800	26,600
Louisiana Gulf Coast	122,000	121,500
Total Louisiana	148,800	148,100
ARKANSAS	30,225	30,375
CALIFORNIA—		
Long Beach	78,000	75,500
Santa Fe Springs	54,500	54,500
Huntington Beach	43,500	41,500
Dominguez	21,500	21,000
Inglewood	17,000	13,500
Ventura Avenue	33,500	33,500
Seal Beach	6,000	6,000
Midway-Sunset	57,000	54,000
Elwood	14,000	13,500
Kettleman Hills	93,500	93,000
Mountain View	33,500	36,000
Playa del Rey	17,500	17,000
Others	173,500	163,000
Total California	643,000	622,000
MOUNTAIN STATES—		
Wyoming	40,900	37,600
Montana	13,100	13,200
Colorado	4,500	4,700
Total Rocky Mountain States	58,500	55,500
NEW MEXICO	56,300	56,500
EASTERN STATES	105,400	104,800
MICHIGAN	53,000	52,000
*Total United States	2,779,275	2,718,125
*Surreptitiously produced oil in East Texas, not included in above figures, estimated at	45,000	50,000
Grand Total, including surreptitious production	2,824,275	2,768,125

†Coastal District of South Texas is included with Texas Gulf Coast.

Crude Runs to Stills; Finished and Unfinished Gasoline; Gas and Fuel Oil Stocks, and Cracked Gasoline Production, Week Ended October 5, 1935

(Figures in thousands of barrels of 42 gallons each)

DISTRICT	Daily Refining Capacity of Plants			Crude Runs to Stills		Stocks of Finished Gasoline			(a) Stocks of Unfinished Gasoline	(b) Stocks of Other Motor Fuel	Stocks of Gas and Fuel Oil	Daily Charging Capacity of Cracking Units			Cracked Gasoline Production
	Potential Rate	Reporting		Daily Average	% Operated	At Refineries	Bulk Term. in Trans. & Pipe Lines	Total at Refys. Term. etc.				Potential Rate	Reporting		Daily Average
		Total	%										Total	%	
East Coast	612	612	100.0	517	84.5	4,139	8,457	12,596	904	255	13,528	534	534	100.0	99
Appalachian	154	146	94.8	99	67.8	1,131	630	1,761	272	95	933	79	78	98.7	32
Ind., Ill., Ky	442	424	95.9	329	77.6	4,036	3,480	7,516	669	45	4,642	349	348	99.7	121
Okla., Kans., Mo	453	384	84.8	254	66.1	2,459	1,675	4,134	401	760	4,842	256	228	89.1	65
Inland Texas	330	160	48.5	85	53.1	1,036	52	1,088	202	1,825	1,555	148	105	70.9	28
Texas Gulf	617	595	96.4	527	88.6	4,855	246	5,101	1,558	155	11,893	399	393	98.5	129
Louisiana Gulf	169	163	96.4	122	74.8	485	465	950	324	.....	4,614	77	74	96.1	23
North La.,—Ark.	80	72	90.0	41	56.9	190	134	324	18	145	463	46	44	95.7	10
Rocky Mountain	97	60	61.9	41	68.3	545	.....	545	98	100	792	46	39	84.8	16
California	852	789	92.6	504	63.9	6,328	2,029	8,357	969	2,200	65,754	280	280	100.0	59
TOTALS WEEK: October 5, 1935	3,806	3,405	89.5	2,519	74.0	25,204	17,168	42,372	5,415	5,580	109,016	2,214	2,123	95.9	582
September 28, 1935	3,806	3,405	89.5	2,618	76.9	25,225	17,751	42,976	5,515	5,725	108,035	2,214	2,123	95.9	567

Below are set out estimates of Crude Runs and Cracked Gasoline Production on B. of M. Basis for Week Oct. 5, 1935 compared with Oct. 1934 Bureau figures.

Estimate B. of M. Basis October 5, 1935	2,695		615
Estimate B. of M. Basis September 28, 1935	2,795		600
U. S. B. of M., October, 1934: Daily Average Crude Runs	2,432	U. S. B. of M., October, 1934: Daily Average Cracked Prod...	517

(a) Amount of Unfinished Gasoline in Naphtha Distillates.
(b) Estimated. Includes Unblended Natural Gasoline at refineries and plants; also Blended Motor Fuel at plants.

ern States, and Michigan, which has shown a steady increase for the past few weeks. The daily average production of 53,000 barrels is now about 13,500 barrels, or around 34 percent, above the 39,500 barrels indicated as the market demand for this month in Michigan.

GASOLINE WAR

California price cuts may spread up coast

THE California market situation is showing no improvement and effective October 10, there was a further break in gasoline prices in Southern California. There is a real fight on between major companies and independent refiners. Small independent retail service station owners are determinded to undersell the larger companies. At a meeting held in Los Angeles October 9, several hundred independent service station owners, backed by independent refiners, voted to undersell major companies one cent a gallon.

The new low retail gasoline price is now fixed at 10.5 cents for third grade, 11.5 cents for regular grade and two cents higher for Ethyl. These prices are effective only in Southern California, but the bulk of the California sales are in south part of the state. Action of the independents mean they will sell at 9.5 cents. But such dealers, or rather many of them, will not stick to the 9.5 cent price. Many will continue to retail at 8.9 cents, with a few even under this figure.

It is feared that the cut price wave will reach into Northern California and may affect other Pacific Coast states. There is now some price cutting in the San Francisco area, and it is expected to spread.

Independent refiners are holding frequent meetings in an effort to get their dealers to adhere strictly to the plan of selling only one cent under the majors. It is believed the majors are determined to discourage action, and the only way to discourage such prices is to lower their own prices.

It is now felt practically certain there will be no immediate crude price cut. One important major company is over producing its wells at Kettleman Hills. It would not look well for a large company to reduce crude prices while over producing its own wells. But there is a real reason for over production on the part of this leading company. Certain offset wells were thrown wide open, forcing this company to do likewise. This action on the part of two operators forced other producers to protect their properties. Thus it becomes a round robin affair, with little indication that either will give in.

Payment of premiums of light refinable crude is being continued, but with smaller premiums. There have been no sales since the last gasoline price cut, hence no new figures are available on premiums. It is generally considered small refineries will refuse to pay in excess of 10 cent premium.

Other markets are fairly stable and there has been no weakening in asking prices for fuel oil, other than in small sales in tank cars or truck movements where the plant is faced by filled storage space. But such instances are isolated.

ONE POUND DROP

Little change in East Texas pressure

TYLER.

RESERVOIR pressure in the East Texas field declined only one pound during September according to a survey prepared October 1 on more than 300 key wells. The weighted average for the field on the latter date was estimated at 1194 pounds. Based on readings taken at 3300 feet sub sea, and corrections made for the temperature at this level. The pressure decline in August was estimated at five pounds, based on the temperature correction table, which was applied for the first time, but would have been only two pounds under the old method of computing the weighted average.

CRUDE OIL PRICE QUOTATIONS

(Figures Represent Basic or Flat Prices—Revised to October 11, 1935)

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Oklahoma-Kansas	28—$ .84	2¢	40—$1.08	9-29-33
N. and N.-C. Texas	28— .79	2¢	40— 1.03	9-29-33
Texas Panhandle				
Gray County	34— .79	2¢	40— .91	9-29-33
Carson-Hutchinson	34— .69	2¢	40— .81	9-29-33
West Texas				
Ector, Pecos, W'kler	*.75			9-29-33
Crane, Upton, Howard and Glasscock	*.70			9-29-33
East Texas	*1.00			9-29-33
Texas Gulf Coast				
Anahuac-Dickinson	30— .94	2¢	40— 1.14	8-20-35
Conroe	35— 1.09	2¢	40— 1.19	9-29-33
Tomball	*1.15			9-29-33
Cleveland	*1.00			1-11-34
†Goose Creek, Hull Liberty, Orange, Pierce Junction, Moss Bluff, Raccoon Bend, Sour Lake, Spindletop, Sugarland, West Columbia, Humble, Rabbs Ridge	Below 20— .82	2¢	34— 1.12	9-29-33
South and S. W. Texas	Below			
Refugio (Light)	20— .82	2¢	34— 1.12	9-29-33
Refugio (Heavy)	*.80			6-29-35
Saxet	*.80			6-29-35
Mirando	*.75			6-29-35
Pettus	*1.05			9-29-33
Salt Flat	*.87			9-29-33
Darst Creek	*.87			9-29-33
Port Lavaca	*.97			
Arkansas				
El Dorado (Light) and Rainbow	29— .79	2¢	40— 1.03	3-17-34
El Dorado East Field and Smackover	*.70			9-29-33

* All gravities—flat rate.
† Gulf Coast prices as posted by Humble Oil & Refining Company.

DISTRICT	Low Grav.	Dif.	High Grav.	Date
North Louisiana	29— .79	2¢	40— 1.08	9-29-33
Urania	*.85-*.87			1- 1-34
South Louisiana	Below			
Lockport	20— .80	2¢	34— 1.10	9-29-33
Iowa, Cameron Mds.	Below 20— .70	2¢	34— 1.00	9-29-33
Rocky Mountain States				
Salt Creek	29— .84	2¢	40— 1.08	9-29-33
Elk Basin	*1.17			9-29-33
Grass Creek (Light)	*1.17			9-29-33
Big Muddy	*1.01			9-29-33
Rock Creek	*1.02			9-29-33
Sunburst	*1.20			7-19-35
Lance Creek	*1.02			8-25-33
Osage	*.62			8-25-33
Cat Creek	*1.07			8-25-33
Cut Bank	*1.45			9-29-33
Pondera	*1.05			9-29-33
Hog Back, N. M.	*1.00			9- 8-33
Lea County, N. M.	*.75			9-29-33
Mid-West States				
Lima	*1.15			2- 1-35
Illinois	*1.13			1- 5-34
Princeton	*1.13			1- 5-34
Western Kentucky	*1.13			5-22-35
Pennsylvania				
Bradford	*2.00			9- 6-35
Sw. Pa. Pipe Line	*1.72			9- 6-35
Eureka Pipe Line	*1.67			9- 6-35
Buckeye Pipe Line	*1.52			7-16-35
Corning Grade	*1.32			10- 2-33
Michigan				
Central Michigan	*1.20			9-30-33
Muskegon	*.70-1.00			12-31-32
Canada				
Petrolia	*2.10			9- 9-33
Oil Springs	*2.17			9- 9-33

* All gravities—flat rate.

MAJOR PRICE CHANGES

	Penna. (Nat. Tr.)	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
March 5, 1933	.....	.....	Cut 24
May 2, 1933	.....	Cut 19	.....
May 9, 1933	Cut 20	.....	.....
May 22, 1933	Up 10	.....	.....
June 19, 1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
August 11, 1933	Up 10	.....	.....
August 24, 1933	.....	Up 10	.....
August 30, 1933	Up 15	.....	.....
September 6, 1933	Up 10	Up 10	Up 15
September 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
November 6, 1934	Cut 25	.....	.....
December 6, 1934	Cut 25	.....	.....
January 4, 1935	Up 15	.....	.....
February 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
August 29, 1935	.....	.....	Revised
September 6, 1935	Up .05	.....	.....

* All gravities—flat rate.

CRUDE PRODUCTION TAXES

Oklahoma—Five percent of grass value less royalty interest.

Texas—Two cents or 2 percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 percent of gross market values.

Montana—Two percent of gross value at well and 3/16 of 1c per barrel.

Wyoming and New Mexico—Production tax based upon state and county assessments.

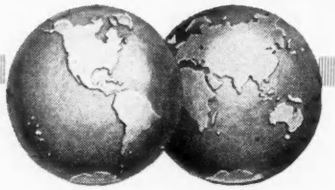
California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

CALIFORNIA

(All gravities above those quoted take lowest price offered in that field)
Effective August 29, 1935

Gravity	Signal Hill	Seal Beach Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey[1]	Olinda-Brea Canyon	Athens Rosecrans Dominguez	Elwood Terrace[2]	Torrance	Richfield	Whittier La Habra	Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Mountain View	Midway Sunset Elk Hills Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$ .65	$ .65	$ .65	$ .65	$ .65	$ .65	.....	.....	$ .65	$ .65	$ .65	$ .65	$ .65	.....	$ .57	$ .57	$ .57	$ .57	$ .57	$ .57
15-15.9	.65	.65	.63	.63	.61	.63	.....	.....	.63	.63	.63	.63	.63	.....	.57	.57	.57	.57	.5	.57
16-16.9	.63	.63	.61	.61	.58	.61	.....	.....	.61	.61	.61	.61	.61	.....	.57	.57	.57	.57	.57	.57
17-17.9	.61	.61	.59	.59	.55	.59	.....	.....	.59	.59	.59	.59	.60	.....	.57	.57	.57	.57	.57	.57
18-18.9	.60	.60	.57	.57	.52	.57	.....	.....	.58	.57	.57	.58	.59	.....	.57	.57	.57	.57	.57	.57
19-19.9	.58	.58	.55	.56	.49	.56	.....	.....	.57	.56	.55	.57	.58	.....	.57	.57	.57	.57	.56	.56
20-20.9	.57	.57	.53	.55	.46	.55	.....	.....	.56	.55	.54	.56	.57	.....	.....	.57	.57	.57	.55	.55
21-21.9	.56	.56	.52	.54	.43	.54	.....	.....	.55	.54	.53	.55	.56	$ .57	.....	.56	.56	.56	.54	.54
22-22.9	.55	.55	.51	.53	.40	.53	.....	.....	.54	.53	.52	.54	.55	.56	.....	.56	.56	.56	.53	.53
23-23.9	.54	.54	.50	.52	.39	.52	$ .55	.....	.53	.52	.51	.53	.54	.55	.....	.55	.55	.55	.52	.52
24-24.9	.53	.53	.49	.51	.38	.51	.54	.....	.52	.51	.50	.52	.53	.54	.....	.54	.55	.54	.51	.51
25-25.9	.52	.52	.48	.50	.37	.50	.53	.....	.51	.50	.....	.51	.52	.54	.....	.53	.54	.54	.50	.50
26-26.9	.51	.51	.47	.49	.36	.49	.52	.....	.50	.49	.....	.50	.51	.53	.....	.52	.53	.53	..	.....
27-27.9	.50	.50	.46	.48	.....	.48	.51	.....	.....	.48	.....	.....	.50	.52	.....	.51	.52	.53	..	.....
28-28.9	.49	.49	.45	.47	.....	.47	.50	.....	.....	.47	.....	.....	.49	.51	.....	.50	.51	.52	..	.....
29-29.9	.48	.48	.44	.46	.....	.....	.48	.....	.....	.46	.....	.....	.48	.50	.....	.49	.50	.51	..	.....
30-30.9	.47	.47	.43	.45	.....	.....	.46	.....	.....	Kettleman Hills			.47	.49	.....	.48	.49	.50	..	.....
31-31.9	.46	.....	.....	.44	.....	.....	.45	.....	.....				.46	.48	.....	.47	.48	..	..	.....
32-32.9	.....	.....	.....	.43	.....	.....	.44	.....	.....				.45	.47	.....	.46	.47	..	..	.....
33-33.9	.....	.....	.....	.....	.....	.....	.....	$ .50	.....		$ .62		.44	.46	.....	.45	.46	..	..	.....
34-34.9	.....	.....	.....	.....	.....	.....	.....	.49	.....		.61		.43	.45	.....	.....	.....	..	..	.....
35-35.9	.....	.....	.....	.....	.....	.....	.....	.48	.....		.60			.44	.....	.....	.....	..	..	.....
36-36.9	.....	.....	.....	.....	.....	.....	.....	.47	.....		.59		.....	.43	.....	.....	.....	..	..	.....
37-37.9	.....	.....	.....	.....	.....	.....	.....	.46	.....		.58		.....	.42	.....	.....	.....	..	..	.....
38-38.9	.....	.....	.....	.....	.....	.....	.....	.....	.....		.57		.....	.41	.....	.....	.....	..	..	.....
39-39.9	.....	.....	.....	.....	.....	.....	.....	.....	.....		.56		.....	.....	.....	.....	.....	..	..	.....

[1] Subject to Field Gathering Charge of 5 cents per barrel.
[2] F.O.B. Ship.



Edited by
WM. V. GROSS, Associate Editor

Taxation Trends

HEAVY DUTIES RETARDING CONSUMPTION THROUGHOUT WORLD

By ADRIAN CORBETT, Director
Anglo Saxon Petroleum Company,
London, England.

AN inhabitant of Europe who addresses himself to the American public on the subject of oil taxation in the old world may well be afraid of being written down a liar.

The American motorist paid over one billion dollars last year in federal and state taxes on nearly 25 million motor vehicles and their fuel and he does not, I understand, consider that he is particularly well treated. He will, I suppose, find it difficult to believe that in Europe 16 countries, possessing altogether some 8½ million vehicles, extracted one billion and 50 million dollars from their nationals in automobile and gasoline taxes in 1934.

The American motorist is at liberty—if so minded—to experiment with other fuels, but nobody prevents him from filling his tank with gasoline if that is the fuel which he prefers. In a number of European countries, this is not the case; the motorist in these countries is bound to use, and pay for, a fuel consisting of gasoline mixed with a percentage of alcohol, which is a far more costly fuel. Indeed, he is fortunate if the government, in its anxiety to make the country as wholly self-contained as possible, does not compel him to abandon altogether the use of liquid fuel in favor of the gas generated from charcoal, coke, anthracite or wood chips.

Inception of the Program

It is impossible here to do more than touch on the causes that have led to the development of a pathological condition. The world crisis descended upon Europe at a time when automobilism and the consumption of motor spirit was increasing rapidly. For a time, the automobile industry appeared to be capable of withstanding the effects of the crisis better than other economic activities. This, together with the ease and rapidity with which oil taxes could be imposed and collected, and the fact that in Europe the ownership of a motor car was regarded as an indication of wealth, led to a rapid increase of the taxation of oil consumers.

In England, for example, the petrol tax was raised, in 1931, by successive two-pences from 4d. to 8d. an imperial gallon. In addition to this, the duties on goods vehicles were greatly increased in 1933, with the result that the total taxation on the road user, which in 1930 was £19.34 per vehicle, had by 1934 risen to £31.28 per vehicle. In Germany, the following increases in the import duties on gasoline were enforced in the space of a little over a year:

Duty prior to April 18, 1930—
RM. 7.74 per 100 kgs. net
Duty as from April 18, 1930—
RM. 12.90 per 100 kgs. net
Duty as from May 29, 1931—
RM. 21.93 per 100 kgs. net.

The tendency to raise gasoline and motor vehicle taxes to extravagant heights has shown itself everywhere but has, perhaps, been most pronounced in those countries whose budgetary difficulties are enhanced by the high exchange level of their currencies. Of this Holland and France are good examples.

The duties on gasoline in Holland were sharply increased in 1932 and again in 1933 and, as from January 1, 1935, an increase of roughly 50 percent in the duties on motor vehicles was put in force. In France, new taxes of various kinds have constantly been piled on motorists and, although in February, 1934, the horsepower tax was cancelled, its place was taken by a very large additional tax, known as the *"taxe de remplacement,"* on motor spirit and on gas oil used in road vehicles. In some cases public taxation of various kinds now represents 75 percent of the retail cost of gasoline.

The following table illustrates the ridiculous height which gasoline taxes have reached in certain countries (figures in United States cents):

Austria . . . . 26.65 per American gallon
Belgium . . . 24.31 per American gallon
Czecho-Slovakia . . . 21.7 per American gallon
France[1] . . . . 38.73 per American gallon
Germany . . . 24.21 per American gallon
Holland . . . . 18.05 per American gallon
Hungary . . . 19.29 per American gallon
Italy . . . . . 40.71 per American gallon
Jugo-Slavia . . 53.05 per American gallon

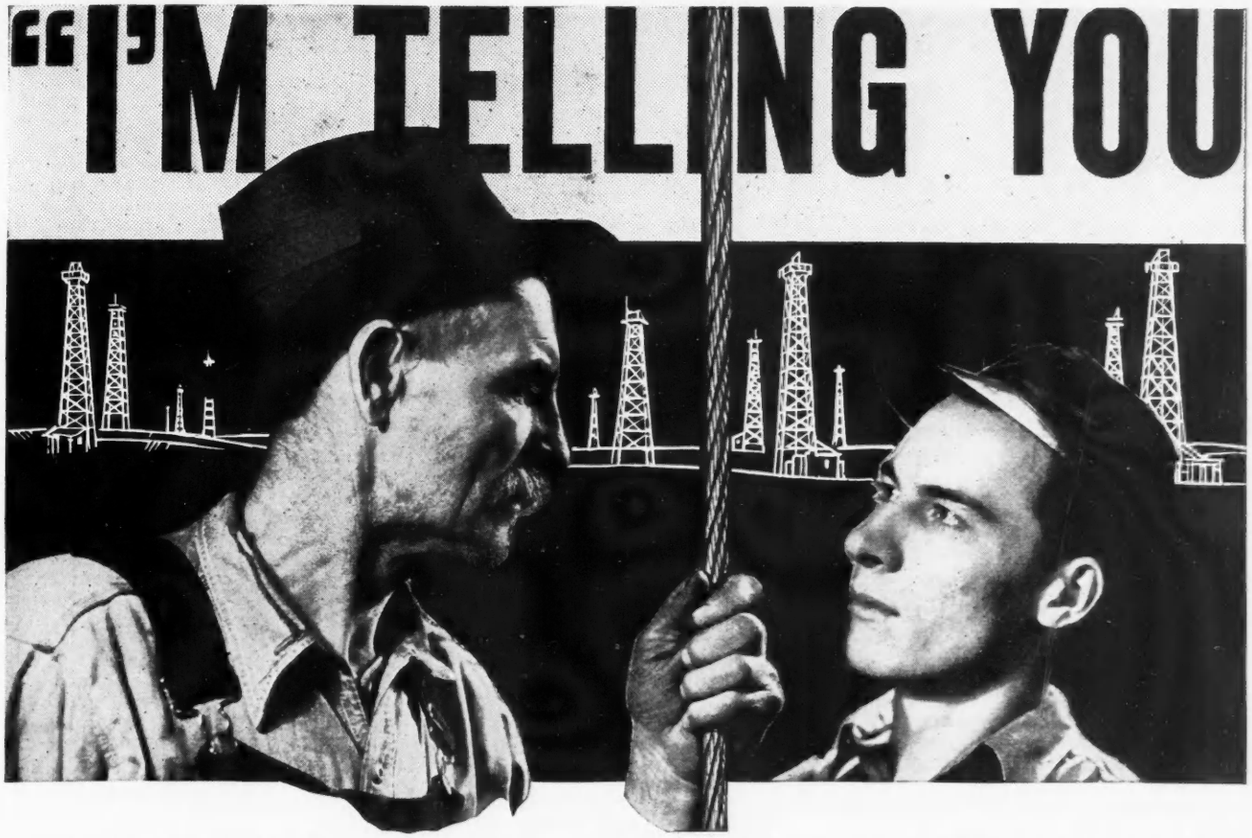
Compared with these, Denmark with 10.59 cents, Sweden with 9.7 cents and England with 13.76 cents appear quite modest.

The effect of high taxation, combined with economic depression, was to paralyze the motor industries in many of these countries and to lead to substantial decreases in the number of motor vehicles in service. Consumption of motor spirit in Austria, Czecho-Slovakia and Yugo-Slavia was in 1934 actually lower than it had been in 1932. Motor spirit consumption in France has shown an unmistakable tendency to decline since the imposition of the "taxe de remplacement," showing that the

ADRIAN Corbett, director of the Royal Dutch Shell Group in London, and remembered in the United States as a vice president on the first roster of Shell Union Oil Corporation executives, presents in this article qualified observations on international oil industry taxation trends of vital importance to all branches of that industry. Compulsory blending of alcohol with motor fuels and the dubiousness of the economic soundness of use of synthetic fuels are intelligently discussed. With the trend toward nationalization of the oil industry so marked in a number of nations, Mr. Corbett's article is not only timely but is a distinct contribution toward understanding a problem which is becoming more and more perplexing.

[1] Includes the "taxe de remplacement" (13.54 cents a gal.) imposed in February, 1934, to take the place of the horse-power tax.

"I'M TELLING YOU



..THAT IT COST ME A LOT TO LEARN ABOUT WIRE LINES"

"EXPERIENCE is priceless they say—and I'm telling you that it cost me a lot of time and money to learn about Wire Lines. I've tried about every brand there is, I guess, searching for low operating costs and for one source that I could depend upon to best meet every need for drilling and production. Like most other old timers, I'm sticking as fast as glue to Tiger Brand Wire Lines—won't use anything else—because they never fail to come through smiling—to do better work at less cost. I'm telling you, also, that the service back of them is the best I ever experienced."

AMERICAN STEEL & WIRE COMPANY

TIGER BRAND WIRE LINES

REG. U. S. PAT. OFF.

AMERICAN STEEL & WIRE COMPANY

208 S. LA SALLE STREET, CHICAGO • • EMPIRE STATE BUILDING, NEW YORK

Pacific Coast Distributors: Columbia Steel Company, Russ Building, San Francisco

Offices in All Principal Cities

Export Distributors: United States Steel Products Company, New York

United States Steel Corporation Subsidiary

limits of taxable capacity have been reached.

Non-Fiscal Considerations

But it is not only fiscal considerations that are responsible for the enormous burdens which have been imposed on the users of oil products. Faced with unemployment, monetary instability, and a growing spirit of distrust and jealousy between nations, politicians have found themselves committed to various schemes for the encouragement of home-production, at the expense of imports. In some cases these are inspired primarily by the desire of the military authorities to establish sources of supply of liquid fuels which could not be interrupted in time of war. In others, it is mainly political pressure exercised by home-producers, either industrial or agricultural, which has been the deciding factor. Generally, it is a combination of both.

Perhaps the most astounding development of the "self-sufficiency" ramp is to be found in the alcohol policy of a number of continental countries—since the production of alcohol for motor fuel purposes from farm products, like beetroot and potatoes, could never, under any imaginable circumstances, become self-supporting. Compulsory mixture of gasoline with a percentage of alcohol produced locally from domestic products is in force in about nine European countries at the present time.

Alcohol Blending Cost

The cost of production of the alcohol is in every case incomparably higher than that of imported gasoline.

To enable alcohol to be used for motor fuel it is, therefore, either necessary to force the gasoline distributors to purchase it at a ridiculous price, or else to give an enormous subsidy to the producers so that it can be sold at approximately the cost of gasoline. In France, the taxpayer sacrifices $75,000,000 a year to enable 95,000,000 gallons of alcohol to be used in place of gasoline. The official price at which a ton of alcohol is sold to the motor fuel distributors is: in Germany $0.76, in Czecho-Slovakia $0.50, in Hungary $0.65 and in Italy $0.48—whereas a gallon of first grade gasoline can be landed in any of these countries for seven cents excluding duty.

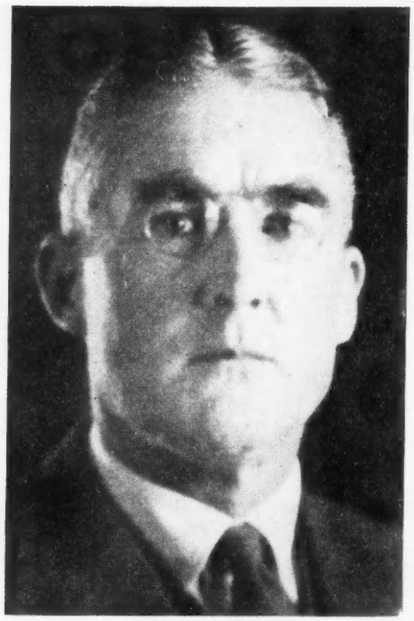
The alcohol policy of these countries has been compared to the proposal to extract sunlight from cucumbers in Swift's famous satire.

From an economic point of view the artificial aids given in several countries, but above all in England and Germany, to the extraction of motor spirit from coal, at a cost equivalent to several times the cost of importing, are only one degree more defensible.

In both these countries, imported gasoline is subject to duties equivalent to several times their c.i.f. value. Gasoline or benzole produced from indigenous materials, such as coal, lignite or shale, is, in England, free of all taxation at present and, in Germany, pays only a purely nominal excise of one mark per 100 kilograms.

Germany's Situation

In 1934, Germany produced about 170,000 tons of alcohol for motor fuel purposes, 280,000 tons of benzole, the



ADRIAN CORBETT

greater part of which was used for motor fuel, and about 150,000 tons of synthetic gasoline, representing the output of the hydrogenation plant of the I. G. Farbenindustrie at Leuna, in addition to some 80,000 tons of gasoline obtained from German crude oil.

In Germany, as also in England, the stimulus given to the home-production of motor spirit is extremely costly to the taxpayer. Efforts of Germany to reduce her dependence on imported fuel cost the German government, in loss of import duties, nearly $80,000,000 in 1934. This sum represents the amount of the subsidy required to secure the production at home, from German raw material, of 480,000 metric tons of gasoline and benzol and 170,000 tons of alcohol or, say, 40 percent of Germany's total consumption of light motor fuels. The cost of importing the equivalent quantities of gasoline would have been only $14,250,000.

The hydrogenation plant built by Imperial Chemical Industries at Billingham in the North of England is expected to produce 150,000 tons of gasoline in 1936. Benzole and petrol produced from shale and by the low temperature carbonization of coal will probably account for another 150,000 tons. If the existing preference of 8d. an Imperial gallon is continued the production of light motor fuels at home will be responsible for a loss of about £3,000,000 in import duties to the British government.

The plan to foster the production of oil from coal in Great Britain was, at the time of its introduction in 1933, enthusiastically acclaimed by those who saw in it a possible means of saving the coal trade or, at least, of giving a large amount of employment to the coal miners who have been displaced in consequence of loss of exports and of increased efficiency both in the production and in the utilization of coal. It is, however, now being gradually realized that schemes of this nature can be expected to produce, at the best, a very inconsiderable alleviation of unemployment among coal miners.

The policies of high taxation and self-sufficiency applied to motor fuel throughout Europe would undoubtedly have been more injurious, not only to the oil industry but to the standard of living and to economic activity generally, but for two circumstances. The first is the coincidence of this movement with one of the greatest declines that has ever been witnessed in the price of motor spirit, the second is the progress of the Diesel vehicle.

Importance of Diesel Oil

Diesel oil has in almost all countries until quite recently been allowed to enter at much lower rates of duty than gasoline, and this fact has undoubtedly provided a great incentive to the development of the high-speed Diesel. Although the actual number of Diesel-engined vehicles in use in England, France, Germany and Italy is still small as compared with petrol-engined vehicles, the fact that the Diesel engine is rapidly replacing the petrol engine for the largest and heaviest vehicles gives it an importance out of proportion to its mere numbers.

In England, the government has recently raised the level of the tax on Diesel oil for use in road vehicles to the same level as the petrol tax. Although this has led to an increase of nearly 200 percent in the domestic price of Diesel oil, it is unlikely to affect adversely the progress of the Diesel engine for the larger and heavier vehicles owing to their higher efficiency and economic value. On the other hand, it will lessen the incentive to develop small Diesel engines for use in the lighter types of vehicle. The action of the British government in raising the duties on Diesel oil to the same level as that on petrol is certain to have repercussions elsewhere. For example, this step is already being widely discussed in Germany, where hitherto the arguments put forward by the Diesel engine manufacturers, who represent an important export trade, have been successful in preventing an increase in the relatively low duties on Diesel oil.

Anti-Taxation Moves

There are signs that the ill effects of the high taxation of motor vehicles on general prosperity are at last being realized. In several countries, during the last few years, endeavors have been made to stimulate the expansion of motor traffic by reducing or abolishing the horsepower tax or by granting various exemptions. Thus, in England, the horsepower tax on private cars has been reduced from £1 to 15s per horsepower. In Germany, there has been no tax on new cars since March 25, 1933. Austria, also, has this year abolished taxes on motor vehicles for one year as an experiment, and Yugo-Slavia has followed suit. In Italy, all new vehicles are exempt from taxation during the first 12 months of their life.

These measures, undoubtedly, are having an effect in reviving the motor industries of Europe. In Germany, for example, the total number of motor vehicles increased by 180,000, or 11¾ percent, during 1934, and registrations of new passenger and goods vehicles during the first six months of 1935 were

50 percent greater than those for the same period of the previous year.

But it remains to be seen whether this increase in the number of vehicles will be accompanied by a proportionate increase in the consumption of motor fuel. While the result of the tax policy of the Hitler government has been to encourage the purchase of new cars, the policy of independence of imported motor fuels, which means that the price of gasoline has to be kept high enough to allow the expensive home-produced spirit to be sold at a profit, bars the way to a noteworthy increase in consumption. In other words, until the countries of Europe can be persuaded to lay aside their policies of self-sufficiency, there is little prospect of any real growth in the consumption of oil products.

Whether this change of outlook can be brought about depends, in the last resort, on one or two fundamental questions. The chief of these is the question of currency stabilization. All arguments against self-sufficiency are bound to fail when they can be met by the cry that the national currency will be endangered if this or that import is not restricted. If the nations could get together and work out a real plan of currency stabilization, even though the possibility of limited movements in the relative values of the various currencies was allowed for, the root cause of the most economic and political troubles would be removed.

If this were followed, as it almost certainly would be, by a relaxation of quota restrictions and a consequent increase in world trade, a general improvement in the international situation might be expected to follow. It would then be possible for questions of importation of liquid fuels *versus* home production to be discussed on their merits instead of as, at present, in a cloud of prejudice. The oil industry need have little occasion to fear what the upshot of any unprejudiced consideration of these questions would be.

There can be little doubt that, with restored prosperity, there is room for an enormous increase in motor traffic and in the consumption of gasoline in European countries. Of this the progress which has taken place in England since 1930 is a fair indication. Gasoline consumption has increased from 995,000,000 to 1,211,000,000 Imperial gallons, or by 22 percent, though the number of motor vehicles increased from 2,259,392 to 2,393,726, or by only six percent.

This confirms the experience of the United States that the tendency is for gasoline consumption to increase more rapidly than the number of cars. The fact that in countries like Germany and France increases in the number of motor cars during recent years have not been accompanied by even a proportionate increase in motor fuel consumption, therefore shows that there are particular causes at work which are preventing the normal increase in consumption.

The consumption of motor spirit *per inhabitant* in the principal European countries is as follows: Great Britain, 88.92 kilograms; France, 58.8 kilograms; Germany, 25.0 kilograms; Italy, 11.75 kilograms; Sweden, 57.5 kilograms; Czecho-Slovakia, 12.22 kilograms; Holland, 46.7 kilograms; Hungary, 5.0 kilograms.

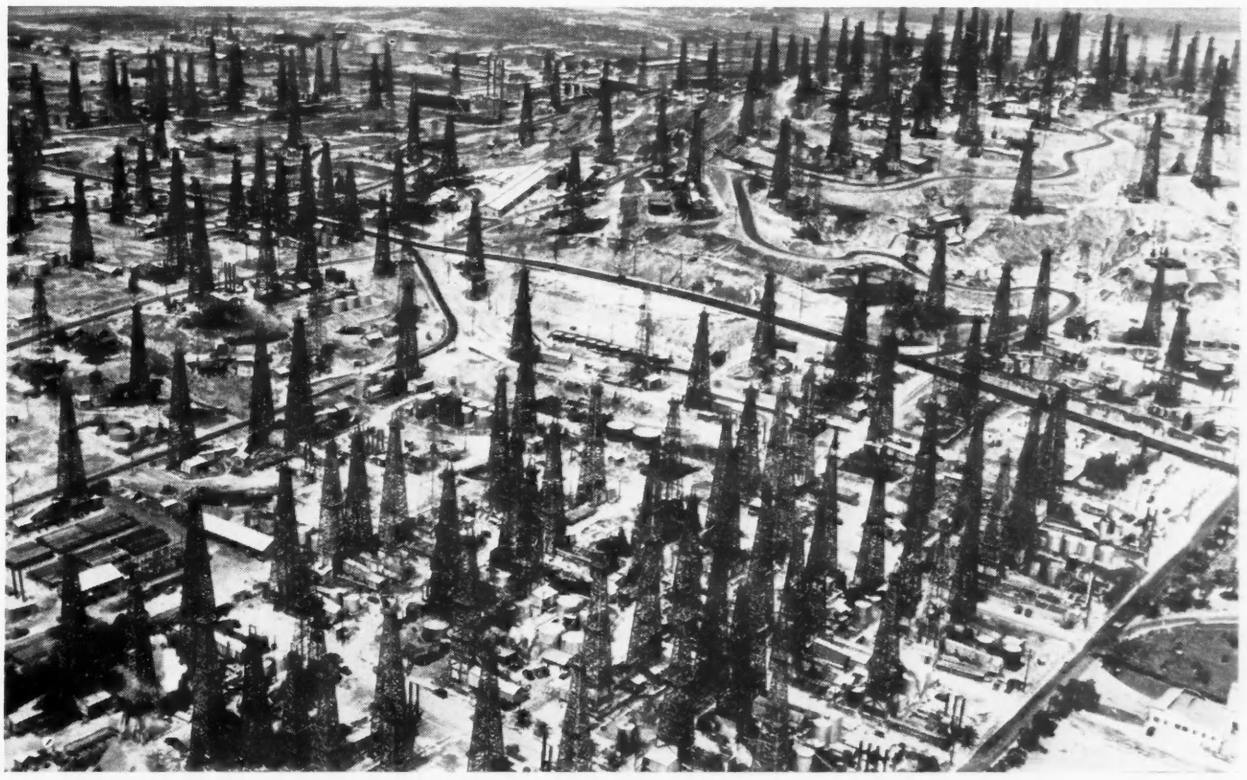
Taxation-Consumption Ratio

Comparing these results with the figures of gasoline taxes given earlier in the article, it will be seen that there is an unmistakable connection between a high level of taxation and a low consumption of gasoline; yet it is to the poorest countries that the motor vehicle offers relatively the greatest possibilities of economic progress. Centuries ago the Roman roads which ran across Europe formed the means by which the blessings of civilization were spread abroad. The civilizing influences of the road are just as much needed today and if today, by the folly of politicians and the blindness of peoples, the inventions of science are perverted to purposes of destruction, let it at least be set on record that the oil industry would more willingly put its achievements at the service of peace and civilization than of war.

PRODUCTION UP

Crude oil production in Venezuela, South America, amounted to 84,750,000 barrels during the first seven months of 1935, a gain of 7,473,000 barrels over the 77,277,000 barrels produced in the first seven months of 1934.

Increased drilling in the Lake Maracaibo region, in Lagunillas and Quirequire fields is credited as being responsible for the increase.



Example of competitive drilling in Long Beach oil field where two and more wells are drilled on a single city lot. Official field tour of the American Petroleum Institute meeting in Los Angeles will include a visit to this area.

August Favorable

BUREAU OF MINES REPORT SHOWS SEVERAL ENCOURAGING FACTORS

FAVORABLE factors continued to generally predominate the petroleum industry in August, according to the report issued by the Bureau of Mines on petroleum and petroleum products. The domestic demand for motor fuel exceeded the record month of July, while the daily average crude runs to stills were sufficiently in excess of production to be the chief factor in reducing stocks of refinable crude oil. The price index was comparatively steady, the disturbing factors on the West Coast only resulting in a fractional decrease from the strong figure for July and remaining much higher than that of a year ago. Production in all leading states except California and Louisiana declined, bringing the output east of Californa below the indicated market demand level for the first time since November, 1933.

The new record demand for motor fuel amounted to a total of 42,901,000 barrels, being 1,698,000 barrels over the previous record month of July, showing a 10 percent gain over August, 1934, and exceeding by a considerable margin the previous record of August, 1931. Domestic demand was also higher for kerosene, gas oil and fuel oil, lubricants, wax, asphalt, and road oil. A slightly lower demand was recorded only for coke and for still gas. Losses and crude used as fuel was considerably higher.

Exports of motor fuel were around 30 percent higher than a year ago, though the total of 2,822,000 barrels was under the levels for the previous months of June and July. Stocks of finished and unfinished gasoline declined almost to the objective set for September 30, reflecting heavy movements from refineries and terminals. The 56,446,000 barrels in storage on July 31 had declined to 51,700,000 barrels on August 31.

The total amount of gasoline produced by cracking increased in August. However, the percentage yield declined from 45.3 percent in July to 44.8 percent in August, reflecting an increased demand for fuel oil, which had been registering the usual seasonal decline.

The unsteady conditions on the West Coast resulted in only a fractionally lower price index, as reported by the Bureau of Labor Statistics. The index of 52.9 for July declined to 52.4 for August, but this is considerably higher than the 51.6 for August, 1934, reflecting encouraging strength in the markets.

Refineries having an aggregate daily recorded crude capacity of 3,690,000 barrels, on which the report was based, operated at 74 percent of their capacity, the same ratio as in July.

Crude Stocks Lower

Refinery operations continued at high levels, resulting in heavy withdrawals from crude stocks. Although the daily average runs to stills in August of 2,729,000 barrels were slightly below the average in July, they were sufficiently in excess of production to reduce refinable crude oil stocks from 329,351,000 barrels on July 31 to 324,966,000 barrels on August 31.

The daily average receipts of domestic and foreign crude at refineries in July were 2,743,000 barrels, of which 3.9 percent were imports, 54.5 percent from intrastate sources, and 41.6 percent from interstate sources. An increase was noted in the ratio moving interstate, mostly recorded in Texas at the expense of the movements from the other leading producing states.

Crude Production Lower

The daily average crude production of 2,736,000 barrels amounted to 84,816,000 barrels for the month of August, which is 21,600 barrels per day below the production for July. This is around seven percent above the average for August, 1934, and some 81,000 barrels above the indicated market demand for August as recommended by the Bureau of Mines. California was largely responsible for the excess above the recommended level and indications are that the area east of California was under the indicated demand figure for the first time since November, 1933.

Louisiana was the only other leading oil producing state to record production gains, chiefly due to the new field at Rodessa. Production in some fields in California completely broke down to cause the daily average to increase in that state to 600,100 barrels. East Texas revealed little change but other districts in that state declined to bring the daily average for August down to 1,059,600 barrels from 1,074,100 barrels in July.

Natural Gasoline Production Lower

The natural gasoline output for August was 101,000 gallons below the daily average for July, 1935, and the same for the corresponding month a year ago, being an average of 4,142,000 gallons per day.

The Texas gas law, although awaiting court decisions on certain features, tended to curtail operations at the "stripper" plants and a 30 percent reduction was recorded in the Texas Panhandle. The Oklahoma City field also declined, but other sections were generally higher in August. Stocks of natural gasoline also showed an unseasonal decline, dropping from 244,279,000 gallons on July 31 to 234,276,000 gallons on August 31.

Supply and Demand of All Oils

From Bureau of Mines August Report on Petroleum

(Thousands of barrels of 42 gallons)

	August, 1935	July, 1935	August, 1934	Jan.-Aug., 1935	Jan.-Aug., 1934
New Supply:					
Domestic production:					
Crude petroleum	84,816	85,485	79,105	646,486	608,517
Daily average	2,736	2,758	2,552	2,660	2,504
Natural gasoline	3,058	3,132	3,057	24,800	23,712
Benzol[1]	159	144	123	1,171	1,220
Total production	88,033	88,761	82,285	672,457	633,449
Daily average	2,840	2,863	2,654	2,767	2,607
Imports[2]:					
Crude petroleum:					
Bonded warehouses	802	479	516	4,719	2,506
For domestic use	2,552	2,041	2,230	16,557	21,126
Refined products:					
Bonded warehouses	956	1,237	598	8,201	6,844
For domestic use	502	467	536	6,107	2,777
Total new supply, all oils	92,845	92,985	86,165	708,041	666,702
Daily average	2,995	3,000	2,780	2,914	2,744
Decrease in stocks, all oils	7,959	2,041	4,132	6,095	11,940
Demand:					
Total demand	100,804	95,026	90,297	714,136	678,642
Daily average	3,252	3,065	2,913	2,939	2,793
Exports:					
Crude petroleum	4,946	5,832	3,696	33,210	26,665
Refined products	6,631	7,093	5,947	47,329	49,210
Domestic demand:					
Motor fuel	42,901	41,203	39,105	283,644	269,184
Kerosene	3,631	2,885	2,803	29,435	27,493
Gas oil and fuel oil	27,389	23,454	24,595	224,598	216,376
Lubricants	1,667	1,655	1,494	13,072	12,588
Wax	75	70	53	605	605
Coke	517	552	552	4,300	5,238
Asphalt	2,223	2,034	1,817	10,678	9,008
Road oil	1,453	1,204	1,288	4,725	4,769
Still gas (production)	4,608	4,814	4,240	33,445	29,349
Miscellaneous	180	177	214	1,443	1,413
Losses and crude used as fuel	4,583	4,053	4,493	27,652	26,744
Total domestic demand	89,227	82,101	80,654	633,597	602,767
Daily average	2,878	2,648	2,602	2,607	2,481
Stocks:					
Crude petroleum	324,966	329,351	351,092	324,966	351,092
Natural gasoline	5,578	5,816	4,790	5,578	4,790
Refined products	227,509	230,845	234,376	227,509	234,376
Total, all oils	558,053	566,012	590,258	558,053	590,258
Days' supply	172	185	203	190	211

[1]From Coal Division. [2]Imports of crude as reported to Bureau of Mines; imports of refined products from Bureau of Foreign and Domestic Commerce.

Pipe Line Activity

NEW PROJECTS— CONSTRUCTION PROGRESS

RUN FIRST OIL

Samfordyce field outlet is important crude line

Brownsville, Texas.—First oil was run through Valley Pipe Line Company's pipe line from the Samfordyce field to Port Isabel October 7. The line will be run at capacity to deliver approximately 100,000 barrels of crude now in storage at the field to the deep water terminal. Following this, probably 3000 to 3500 barrels of crude will run daily as it is produced.

The first commercial shipment is to be made to a foreign destination, which is unannounced, but reliably reported to be for the Italian government. The total deal is reported to be 120,000 barrels, or about two tanker loads.

The line was commenced on August 8 and was completed in 48 working days, an average of nearly two miles per day. This work was done by 200 men and cost approximately $225,000, completed.

The work included the crossing of 104 canals, highways, and railroads. Each crossing is welded. Same type connections are made through swamps and other lowlands where pipe is exposed to strain, etc.

This company has two storage tanks, one a 55,000-barrel and another 20,000-barrel job, at the field. These tanks have been filled in addition to 25,000 barrels more production in field storage and other facilities awaiting their removal. A pump station, powered by Diesel motors is located at the field.

At the terminus of the line, which is the extreme west end of Port Isabel, a tank farm consisting of two 55,000-barrel tanks, one 20,000-barrel tank, and several smaller tanks, have been constructed. Additional facilities are contemplated at this point. This terminal is operated under the name of the Port Isabel Terminal Company and the construction project at this end of the line represents an outlay of slightly more than $100,000.

Valley Port Refining Company, another associate company, has approximately 35 acres adjacent to the terminal, where a large refinery is being constructed. This plant will have a capacity of 5000 barrels per day and will cost in the neighborhood of $250,000. It will be in operation shortly after the middle of November.

The pipe line is routed as follows: Commencing at the Samfordyce field on the Starr-Hidalgo County line, it trends southeast to Hanana, Penitas, Ojo de Agua, Madero, Hidalgo, thence due east through Progresso, Rangerville to Barrera, thence east parallel to State Highway No. 100 to the end of Port Isabel.

The construction of this pipe line gives the Rio Grande Valley district its first major outlet for crude oil. There has been a heavy exploration campaign in the area during the past several years, netting several fields in Hidalgo and Starr Counties and structures thus far defined through geological, geophysical and drilling operations indicate that the territory is going to be an important feature in South Texas production. Several other fields, now in process of development may prove of sufficient importance to warrant construction of an extension of the present line or the building of an additional outlet. As will be noted on the accompanying map, there are eight fields in the immediate valley district, but Samfordyce is the first to receive an outlet via trunk pipe line.

It is less than 75 miles from the Samfordyce field to the lower end of the highly prolific Mirando district. At this time, there is a shortage of pipe line facilities in the Mirando area, hence extension of the Valley line into the Mirando area seems possible.

Port Isabel is a new deep water outlet, open only a month. It has been the center of considerable promotion of pipe line and refinery projects, but to date, the only active development has been by the builders of the tank farm, refinery and pipe line. All are associated with the Texas State Oil Company.

T. Frank Murchison, of Dallas, is president of Valley Pipe Line Company, H. H. Hensley is general manager of the company. G. L. Rowsey,

Map showing new South Texas pipe line route.

Taylor, is associated with the above in Valley Port Refining Company and Port Terminal Company. Also associated in the company is E. M. Closuit, Dallas.

BUY KANSAS LINE

Tulsa.—Skelly Oil Company has announced the purchase of 37½ miles of six-inch line between the Burrton area of northeastern Reno County and Lyons Junction, one mile east of the town of Lyons in central Rice County. The purchase, a part of the old Central Kansas Pipe Line Company's system, was made from Standish Pipe Line Company, a 100-percent subsidiary of Phillips Petroleum Company. Work will start at an early date on a new six-inch welded line, tying into the recently acquired old line at Lyons Junction and extending northwestward to the Lorraine pool in 17s-9w, southwestern Ellsworth County. Later Skelly plans on extending the new line northwestward into the pools of western Russell County.

The old Central Kansas Pipe Line Company's line will be tied into the Skelly system at Burrton. The company's established system for this portion of the state includes a six-inch line from the Ritz-Canton area of eastern McPherson County to Burrton and an eight-inch line from Burrton, south and southeastward to Valley Center in northern Sedgwick County and eastward to El Dorado in central Butler County, where the Skelly refinery is located. The completion of this project will give the Thode and Welch pools of Rice County a much needed outlet. Its eventual extension into Russell County will give that area its third outlet.

PASS CHAIN TAX

THE Texas legislature has finally passed a chain store tax bill which does not include filling stations or oil well supply houses. The governor is expected to sign the bill without delay, as it was one of the main subjects submitted to the special session.

Filling stations were exempt through a senate amendment which exempted "any place of business engaged exclusively in the storing, selling or distributing of petroleum products and the servicing of motor vehicles."

Merchandising units of public utilities were left in the bill, which means that gas distributing company stores will be subjected to the tax.

The house protested vigorously against the senate amendment which eliminated filling stations, but proponents of the measure were afraid to send the bill to a free conference.

They declared that they preferred to accept a defective bill which could be amended to include filling stations, once it became a law. It was pointed out that another special session to consider old age pensions is expected to follow, according to a message of the governor send up during last week.

Several bills increasing the tax on oil are expected during the next session.

Unusual Building

HUMBLE OIL & REFINING IN NEW MODERN QUARTERS

THE largest private construction undertaking of 1934 is completed. As a result Humble Oil & Refining Company, Houston, is occupying its new 17-story office building that joins the older structure. The new building is one of the most modern, well equipped, perfectly arranged, and attractively decorated office buildings in the world. It speaks well of the oil industry that one of its concerns should lead the nation's business firms in construction enterprise during the year.

The main floor concourse, with a slightly vaulted ceiling, is semi-modernistic in decoration. The smooth white finish reflects the light from indirect lamps, presenting a new type of unusual beauty and efficiency. Four automatic elevators are installed.

Modern touches include air conditioning; electric light and telephone ducts in the floors; pneumatic tubes connecting the waiting rooms on each floor; and acoustical treatment to diminish noise in all offices.

Working offices end on the fourteenth floor, on which the company's executive offices are located. Immediately above this floor is the executive and department head's dining room.

Of particular interest are some of the decorative schemes. The walls of the dining room are covered with aerial maps instead of being plastered. These maps show the entire Gulf Coast area from Mexico to Florida, and in addition West Texas, Southwest Texas, East Texas, Panhandle and parts of Oklahoma. In three of the executive offices the walls are covered with large United States Geological Survey maps, that show the outcrops of the different formations. The maps cover Texas, Louisiana, Arkansas, Mexico and parts of Oklahoma.

Newly completed Humble building at Houston

A. P. I. ENGINEERS

At Ada hold interesting chapter meeting

Ada, Oklahoma—From the standpoint of merit of program, character of the discussion and size of attendance the Ada Chapter, Production Division of the American Petroleum Institute, considered its meeting on Friday evening, October 4, one of the most successful it has held. The meeting was opened at 8 p. m., in the Aldridge Hotel by Ira E. Dugan, deputy conservation officer in charge of the Fitts pool and acting chairman of the chapter. An attendance of more than 100, most of whom are field men in the Fitts pool, indicated a special interest in the subject of the use of fibrous material in muds and cement. Dugan introduced C. P. Parsons, vice president of Halliburton Oil Well Cementing Company, who described the nature of and uses of fibrous material and cited some instances of its success.

That this subject should be of special interest to the men in the Fitts pool and to those who hope to find production elsewhere in the district is not surprising in view of conditions being encountered. In the Fitts geologic section several of the beds lying above the major producing horizons are exceptionally hard to get through due to pressures and the tendency to take mud and cement where hydrostatic pressures exceed those existing in the formation. Complete loss of circulation and failure to place sufficient amounts of cement of the proper character behind the casing are two interrelated problems which have occupied first place in the field.

The use of fibrous materials in sealing off thirsty formations is an old practice. Cotton seed hulls have been pumped into the formations or forced in by hydrostatic pressure by the thousands of tons. Straw, ensilage, chopped up bull ropes, etc., have been resorted to in many instances. It was not, however, until a comparatively recent date that the idea of using carefully prepared fibrous material of known fibre lengths came into being.

In the discussion which followed the principal address it was brought out that one major company has used approximately 65,00 sacks of fibrous cement in the pools of Kansas, Oklahoma, Texas and New Mexico without a failure. It is the practice of one of the Fitts operators to mix a 14½ to 15-pound cement slurry. Slurries above 15 pounds tend to become very viscous and below 14 pounds to become very watery with a tendency to permit stratification of the fibrous material. Tests recently conducted show a volumetric increase in the fibre cement slurry of from 11 to 15 percent and a loss of from 30 to 40 percent in tensile and compressive strengths. The mixture usually is two percent by weight of fibrous material.

In the early jobs the fibres were fed to the neat cement by hand but two cement manufacturers have been granted the privilege of selling fibre cement which is mixed in the plant. On the first job done in the Fitts pool one of the operators started losing circulation at approximately 500 feet. Between that point and 600 feet about three pits of mud had been lost to the formation and circulation had been completely lost. About 1000 pounds of fibrous material was put through the mud mixer and pumped into the hole. Within a few minutes circulation was reestablished and the hole then deepened approximately 80 feet. The operator then cemented 675 feet of 13⅜-inch casing with neat cement and with no apparent loss of circulation or cement. About 60,000 sacks of fibre cement is reported to have been used in the Fitts pool.

WARREN BUYS PLANTS

New company to operate in Texas and Oklahoma

Tulsa.—Warren Petroleum Company made known during the week that its subsidiary, Natural Gasoline Corporation, had purchased all of the natural gasoline plants, equipment and natural gasoline production of Amerada Petroleum Corporation in Oklahoma and Texas. The purchase involved six plants in Oklahoma and one in Texas, the combined capacity of which is approximately 158,000 gallons daily or about three times the present daily production. Change of ownership became effective on October 1.

M. E. Mockley, who came with Amerada Petroleum Corporation at the time its first gasoline plant was built and has been general manager of the natural gasoline division of the company for the past 14 years, will be with the new organization as vice president in charge of operations. Other officials of Natural Gasoline Corporation are W. K. Warren, president; J. A. LaFortune, vice president; H. E. Felt, secretary, and A. J. Murphy, treasurer. All but one member of Mockley's staff and the entire field personnel have been taken over. H. W. Hartz will continue as Mockley's assistant and W. A. Baden of the Warren organization will join Natural Gasoline Corporation. All casinghead gas rights of Amerada Petroleum Corporation in the new Monument field of Lea County, New Mexico, are included in the transaction. In addition contracts are being signed with other operators in that area and the new company plans erection of a large natural gasoline plant in that field.

EXTEND DILL POOL

Tulsa.—Relvern Oil Company established a half-mile extension to the Dill pool of western Okfuskee County and apparently has one of the largest wells ever completed in the locality with completion of its Johnson 1, C NE NE 11-11n-8e. Top of the Hunton lime was encountered at 3886 feet and the hole drilled to 3906 feet still in the lime. It was treated with 2000 gallons of acid and shut in for 72 hours awaiting the reaction. Reopened at 8:15 A.M. Wednesday it started flowing at the rate of approximately 85 barrels per hour. By two o'clock it had put 500 barrels of oil into the tanks. Flowing through tubing and a one-inch choke against 500 pounds of back pressure.

A. I. M. E.

[*Continued from page 10*]

shutting off the gas is an important marker. The paper was read by Glenn D. Robertson.

The first paper presented October 11 was "Electrical Logging of Formations Concurrent with Drilling," by J. C. Karcher, Geophysical Service, Inc. A number of charts and photographs were shown to support the paper, which described a new method of electrical logging by insulating the drill bit from the drill pipe by means of a tubular section of bakelite about four or five feet long, using an insulated conducted rod mounted in each section of drill pipe and provided at the end for making connection with the connecting rod in the adjacent section as the lengths of drill pipe are joined together.

Claude P. Parsons, Halliburton Cementing Company, read a paper October 11 on "Review of Plugging Back Methods." During the discussion following the reading of the paper, it was disclosed that cement manufacturers are now mixing fibrous materials with cement for use in plugging back and shut-off operations. Mr. Parsons stated that it was his belief that in shutting off water nearly all of the cement finds its way into erosions, and that very little actually forces itself into the unbroken formations. At Oklahoma City water has been shut off by pumping cement down through the casing, but the flow of oil was unaffected, it was disclosed. W. T. Doherty, Humble Oil & Refining Company, said that his company had found that 24 hours was long enough for cement to set, since in that time it had shown 60 percent of its 28-day strength and 95 percent of its ultimate strength.

The last paper presented October 11 was "Water Flooding," by G. H. Fancher, York State Oil Company, and Kenneth B. Barnes, Tulsa, Oklahoma. The paper gave a brief presentation of such data as are available on existing operations, a survey of the region and the extent to which application of the method seems most likely to be made, an estimation of the crude reserve existing for such operations, suggestions as to the importance of core analysis in guarding against uncontrolled floods, and comment on some of the economic phases involved.

Papers presented Saturday morning, October 12, included "Conservation and Economics," by R. D. Parker, consulting engineer; "Producing from Bottom of Reservoir by Setting Casing Deep, Using Shot Perforation Method, and Retreating Upward as the Layers Are Exhausted," by W. E. Hubbard, Humble Oil & Refining Company, and M. Albertson; "Practical Application of Subsurface Pressure Studies," by Wentworth Osgood and Harvey Lee; "Investigation and Determination of Surface Tension and Specific Gravity of Crude Oil Under Reservoir Conditions," by D. T. Jones, Anglo-Persian Oil Company; and "Experiments on the Vertical Flow of Gas-liquid Mixtures in Glass Pipes," by J. E. Gosline, Standard Oil Company of California.

The Friday morning session was given over to a trip to various manufacturing plants near Houston. A dinner was given Friday evening.

The average attendance for the four meetings was above 200 members and visitors.

Small Edmond Wells

TWO NEW COMPLETIONS ARE COMPARATIVELY SMALL

WEEKLY STAFF REPORT

Oklahoma City.—The hazard of a geologically complicated structure such as the Edmond structure, four miles west of Edmond in northwestern Oklahoma County, was forcibly demonstrated during the week with the completion of two wells which so far have proven the smallest in the pool. Pure Oil Company's Malm 2, NW NE SW 30-14n-3w, flowed 835.70 barrels on a four-hour potential test along with gas at the rate of 6,500,000 cubic feet per day. It is a direct west offset to Malm 1, a 20,586-barrel well. Marathon Oil Company's Dahl 8, SW SW SE 31-14n-3w, flowed only 356.83 barrels in 14 hours from 6709 feet, the total depth. It is a west offset to Dahl 6 which has an October 1 potential of 3206 barrels and two locations west of Dahl 5, a 11,710-barrel well potentially. Both new wells appear to be very near the western edge of production, although Dahl 8 is a north offset to a large well.

In the Britton area to the south J. E. Mabee's Bailey 1, NW SW SE NE 20-13n-3w, flowed 25 barrels in 24 hours after being plugged back to 6685 feet. It originally was drilled to 6846 feet in Wilcox sand topped at 6825 feet. Nothing more than slightly stained sand was found in the Wilcox and electric logging showed nothing of importance. An attempt will be made to further define the productive area with the drilling by Sinclair Prairie Oil Company of its Tinsley 1, SE NW SE 17-13n-3w, location for which was staked during the week. It will be 1¼ miles northeast of the discovery well. Sinclair Prairie Oil Company and Slick-Urschel Oil Company's Kratky 1, SE SE NE 19-13n-3w, was drilling below 5655 feet.

Sinclair Prairie Oil Company's Glen 1, NE NE SE 27-15n-3w, in the Seward area of southwestern Logan County, had been cored to 6363 feet and stopped to take a drill stem test. Top of the second Wilcox sand was encountered at 6349 feet and coring commenced at 6358 feet. A fairly well saturated sand was recovered. The Texas Company's Wood 1, SW SW NE 34-15n-4w, had finished up a long fishing job, cemented casing at 6433 feet and was waiting on cement to set.

It is rumored that Stanolind Oil & Gas Company and Amerada Petroleum Corporation will announce location at an early date for No. 1, SW SW SE 20-8n-3w, 6½ miles southwest of Norman but over the line in northwestern McClain County. The two companies own jointly approximately 2300 acres of leases in a solid block with several hundred acres checkerboarded in the area around it. Several other of the leading major operators own acreage in the vicinity.

Davenport Area

Sinclair Prairie Oil Company has started an interesting operation in the deepening of its K. E. Stout 4, NE SE NW 3-14n-5e, approximately one half-mile from the edge of the structure in the northwestern portion of the Davenport pool which adjoins the townsite of Davenport. This well originally was completed May 15, 1925, as a 342-barrel well in Prue sand at 3468 feet, five locations east of the western edge of production. The Davenport pool was discovered in September, 1924, when Morgan and Flynn completed their M. and F. Sporeleder 1, SW SW SE 34-15n-5e. Production eventually was established in the Layton sand at an average depth of approximately 2600 feet and Prue sand at approximately 3350 feet. Although several nice wells were completed in the Layton sand the Prue was by far the most important. Several wells in the area were drilled to Wilcox sand but none were favorably located on structure.

Sinclair Prairie has not announced its intentions in drilling Stout 4 deeper but it evidently will be carred to Wilcox sand which should be found at not lower than 4000 feet and probably nearer 3800 feet. The possibility of finding commercial production in some of the horizons below the Prue sand appear to be good, notably the upper Simpson and the underlying Wilcox.

Fitts Wildcat

Continental Oil Company's McCarty 1, C SW NW 12-1n-7e, approximately six miles southeast of the Fitts pool in southeastern Pontotoc County, continued to be a center of interest as it fished for rotary tools with total depth at 4446 feet. This wildcat test, located in an area where two deep dry holes have been drilled, started making gas at the rate of about 1,250,000 cubic feet when Bromide formation was topped at 4155 feet. In the second Bromide sand at 4312 to 4348 feet gas had increased to 3,800,000 cubic feet and at 4380 feet gas estimated at 5,500,000 cubic feet blew tools up the hole and resulted in a fishing job. It is now estimated making gas at the rate of approximately 9,000,000 cubic feet and has the second fishing job due to tools being blown up the hole.

Carter Oil Company et al's Thompson 1, C SL NE NW 34-2n-9e, important wildcat test on the Centrahoma Arch near here, lost an underreamer lug and was milling at 5985 feet, still in the Viola lime topped at 5970 feet. It is thought the operators will not drill much more of the lime before setting casing which probably will be a string of 9⅝-inch. On top of the Viola lime it is correlated as being 730 feet higher than a deep dry hole six miles to the west.

Oklahoma City Field

British American Oil Producing Company's Green 1, SE SW SW SW 23-12n-3w, important extension to the Oklahoma City pool near the State Capitol building, was still trying to recover a swab lost in the hole several days ago. When first opened for testing it showed more than 200 barrels per hour. Operators failed to get the pressure bomb lower than 250 feet off bottom and the hole was believed to be bridged at that point. It was estimated to have approximately 600 pounds formation pressure, another indication that it is an extension well and not on a separate structure. Production is from Wilcox sand topped at 6328 feet and cored to 6365 feet, the total depth.

Sinclair Prairie Oil Company et al's Lizzie Hussman 1, SW SE SW 21-10n-2w, one-half mile southwest of the discovery well in the Moore pool seven miles northeast of Norman in northern Cleveland County, was drilled to 7331 feet. The test was bailed down to 680 feet where it was showing only a small amount of gas. It was said to be running approximately 175 feet lower than the discovery well. Second Wilcox sand, from which the discovery well is estimated capable of making 150 to 200 million cubic feet of very wet gas, has not yet been reached. One mile to the southeast of the discovery well, Hall & Briscoe et al's Fant 1, SW SW NE 27-10n-2w, was reported plugging back to 5570 feet to set whipstock after drilling to 6830 feet and losing 650 feet of drilling pipe which could not be recovered.

OKLAHOMA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARTER COUNTY—		
Schermerhorn Oil Co.'s Smith 14, nw sw sw 5-4s-3w	*	1323
Waco Turner Oil Co.'s Munson 1, ne nw ne 35-5s-2w	*	5026
COMANCHE COUNTY—		
Bacon et al's Fahy 2-A, nw sw sw 21-2n-10w	¶1	463
Seitz & Comeges' American National Bank 1, sw sw nw 21-2n-10w	*	905
CREEK COUNTY—		
Powers & Quinlin's Anthis 1, ne ne sw 25-19n-8e	20	2389
Emmett Adams' Romie Helton 2, sw ne ne 12-17n-9e	*	1980
Tom Phillips et al's Riverbed 1-A, nw nw se 8-18n-7e	25	2301
C. O. Buckles' Buckles 2, nw nw ne 22-18n-8e	100	2677
HUGHES COUNTY—		
Sadler's Scott 1, nw nw nw 23-7n-9e	*	1287
Potco Oil Co.'s Dixon 2, se ne nw 12-9n-8e (pb 1490)	40	1495
JEFFERSON COUNTY—		
Nacoma Prod. Co.'s Penniston 1, se se nw 16-7s-5w	4	795
JOHNSTON COUNTY—		
Neff & Godfrey's Evertts 1, se sw sw 20-4s-6e	*	390
KAY COUNTY—		
Wentz Oil Co.'s Mussetter 2-A, csw sw 5-28n-1e	8	3410
LINCOLN COUNTY—		
The Texas Co.'s Hoover 4, se sw se 33-14n-4e	135	3075
Mid-Continent Pet. Corp.'s Wagner 2, sw nw nw 10-13n-6e	140	4278

Company, Well and Location	Init. Prod. Bbls.	Depth
LOGAN COUNTY—		
Anderson-Pritchard & Buttram's Cavalt 1, nw sw se 22-16n-3w.....	*	6330
MARSHALL COUNTY—		
Headington's Snell B 1, se se ne 36-7s-5e	lcn.	abd.
Leavell Coal Co.'s Eppler 12, ne ne ne 36-7s-5e	*	558
McClure et al's Felts 1, sw sw nw 6-8s-6e	*	231
MUSKOGEE COUNTY—		
Goodman et al's Manuel 1-A, nw nw nw 6-15n-15e	*	1760
Jones et al's Townsite 1, se ne ne 34-15n-18e	*	1020
OKFUSKEE COUNTY—		
Oklahoma Oil Corp.'s Lasley 1, se sw nw 25-10n-10e (otd 3258).....	¶9	3379
Carter Oil Co.'s Hudson 1, cnw sw 1-11n-8e	168	3975
OKLAHOMA COUNTY—		
Nemaha Oil Co.'s Oak Park 1, nw se nw 35-12n-3w	100	6472
Phillips Pet. Co.'s Traders 3, sw se sw 36-12n-3w	13,218	6436
Travis Pet. Co.'s Lucas 2, ne nw sw 36-12n-3w	1420	6492
Gulf Pet. Co.'s Lindsay 1, ne sw nw 6-13n-3w	360	6742
OSAGE COUNTY—		
W. C. Norris' 20, sw nw nw 10-20n-12e (pb 1349)	20	1355
Gray's 9, se nw sw 27-21n-9e.....	25	1131
Comail Oil Co.'s 9, ne sw sw 32-22n-8e	47	2306
Elliott & Bay Oil Co.'s 2, sw ne se 33-22n-11e	*	2134
Carter Oil Co. et al's Adlum 8, se ne nw 10-25n-6e	lcn.	abd.
PONTOTOC COUNTY—		
Magnolia Pet. Co.'s Shaffer 7, ne sw nw 25-2n-6e (pb 4405)....¶½-2121		4418
Amerada Pet. Corp.'s Norris 2, se sw se 26-2n-6e .....¶1½-3361		4382
Burke-Greis' Chambers 3, se ne nw 26-2n-6e (pb 4310) 1222		4391
Moore et al's McCoy 2, nw sw sw 28-2n-7e .....¶1-2211		4357
Harper 3, ne sw ne 29-2n-7e.....210		3674
McCoy 1, ne se se 29-2n-7e..¶1½-2291		4306
Wirick 6, ne ne sw 29-2n-7e...¶2-4198		4309
Moore's Woodroof 7, sw ne se 29-2n-7e .....¶3-4422		4095
McBride et al's Coplen 1, se se sw 31-4n-5e	*	2100
Sunray Oil Co.'s McCall 19, ne ne ne 17-5n-8e	*	850
POTTAWATOMIE COUNTY—		
Commercial Drlg. Co.'s Brandenburg 1, ne sw ne 3-7n-4e 1040		4060
Shell Pet Corp.'s Hines 2, se sw nw 22-6n-4e (otd 3790)..... 250		4255
SEMINOLE COUNTY—		
Mudge Oil Co.'s Heard 4, nw se nw 9-6n-7e	*	1950
Mudge Oil Co.'s Thomas 2, ne ne sw 9-6n-7e .....lcn.		abd.
Sinclair Prairie Oil Co.'s Davis 3, sw sw ne 13-7n-6e (otd 3217 to dd report an error).		
Mallarnee's Wood 1-A, se se se 28-7n-6e	43	2849
Burke-Greis' Jackson 3, nw sw sw 29-7n-8e (pb 4135) 284		4161
Vinson's Davis 3, se sw ne 30-7n-8e 156		4164
Sinclair Prairie Oil Co.'s Calkins 1, nw nw sw 17-9n-6e (pb 2714).....	*	4311
Carter Oil Co.'s Lucas 1, cw½ se sw 14-10n-6e 155		4210
Magnolia Pet. Co.'s Browning 2, ce½ sw nw 14-10n-6e 1440		4155
TULSA COUNTY—		
Mechling's McIntosh 9, ne ne ne 14-17n-14e	*	1185
Owens' Carvey 3, sw nw nw 27-18n-14e	¶1	1434
WAGONER COUNTY—		
Hartman et al's Brown 1, sw sw se 32-18n-16e	*	930

*Failures; †Junked; ¶Million cu. ft. gas.

WEST OKLAHOMA

Enid.—Olson Drilling Company et al's Acre 1, C SW NE 14-24n-11w, 14 miles south of Cherokee in southern Alfalfa County, cored from 6464 to 6472 feet and was preparing to drill ahead after recovering four inches of Mississippi lime. This test was started several years ago and has been operated under several ownership names. Some small showings of oil and gas have been encountered above the Mississippi lime.

Three and one-half miles southeast of the town of Medford in east central Grant County, Shell Petroleum Corporation topped Mississippi lime at 5285 feet and was drilling below 5373 feet in its Foster 1, SE NW NW SE 30-27n-8w. Shell obtained this acreage over nine years ago but was unable to renew the 10-year leases so was forced to drill or give up the 3040-acre block.

Sunray Oil Company's Shanks 1, SW SW NE 10-20n-4w, topped Tonkawa series at 3810 feet, six feet lower than in Continental Oil Company's Brown 1, C NL SW 10-20n-4w, producing well approximately one-quarter mile to the west and slightly south in the old Douglas pool of southeastern Garfield County.

OKLAHOMA ACTIVE

Tulsa.—Optimism that the oil industry of Oklahoma would show an appreciable pick up during 1935 has been rewarded during the first nine months of the year as indicated by a review of the records as of October 1. During the first nine months of 1935 there had been made 1778 first reports, an increase of 18.06 percent over the same period of 1934; 1100 oil wells had been completed, an increase of 20.88 percent; 84 gas wells, an increase of 35.48 percent; 539 dry holes, an increase of 24.20 percent; and a total of 1723 completions, an increase of 22.55 percent. The 1100 oil wells had a combined in-

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CONDENSED SCHEDULE

Lv. St. Louis	6:30 P. M.	Nov. 7th	Mo. Pac.
Lv. Memphis	10:50 P. M.	Nov. 7th	Mo. Pac.
Lv. Texarkana	6:45 A. M.	Nov. 8th	T. & P.
Lv. New Orleans	10:15 P. M.	Nov. 7th	T. & P.
Lv. Shreveport	7:05 A. M.	Nov. 8th	T. & P.
Lv. Longview Jct.	9:15 A. M.	Nov. 8th	T. & P.
Lv. Dallas	12:20 P. M.	Nov. 8th	T. & P.
Lv. Fort Worth	1:45 P. M.	Nov. 8th	T. & P.
Ar. El Paso	6:30 A. M.	Nov. 9th	T. & P.
Lv. El Paso	8:55 A. M.	Nov. 9th	So. Pac.
Ar. Los Angeles	7:30 A. M.	Nov. 10th	So. Pac.

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itial production of 2,148,813 barrels, an increase of 193.30 percent; and the 84 gas wells, 968,500,000 cubic feet, an increase of 134.50 percent.

In the past week scouts made 50 first reports from 17 counties. Osage County was the leader with 11; Pontotoc County had six; Oklahoma County, five Creek, Lincoln, and Pottawatomie Counties, three each; Jackson, Kay and Seminole Counties, two each; and Atoka, Coal, Comanche, Garvin, Hughes, Tulsa and Wagoner Counties, one each. Completions again were in greater number than first reports when 55 tests were removed from the active list. Of this number 31 were oil wells with total initial production of 39,234 barrels, three were gas wells with combined initial volume of 11,000,000 cubic feet, 18 were dry holes and three were abandoned locations, a total of 55 completions. Five of these were wildcat dry holes with combined total depth of 15,133 feet, two were old wells deepened 585 feet and the remaining 48 involved 133,894 feet, a total of 149,613 feet of completed drilling.

DEEP FOX TEST

Ardmore.—Carter Oil Company's Williams 1, SW NE SW 27-2s-3w, deep wildcat test in the old Fox field of northwestern Carter County, stuck drill pipe at 8049 feet but freed the string and was drilling ahead in lime after first encountering lime streaks at 8020 feet. It is the deepest drilling well in the state and is one of the most interesting from a geological standpoint. More than 1000 feet of upper Simpson material has been penetrated.

Sinclair Prairie Oil Company's Stockton 1, SE SE SW 26-6s-2w, sixteen miles west of the town of Marietta in western Love County and about 12 miles southwest of the Brock pool in southern Carter County, was coring below 5740 feet apparently still in the Deese member of the Glenn series of Pennsylvanian age. This ranks among the most interesting wildcat tests in the southern portion of the state.

KANSAS INCREASES

First nine months far ahead of last year

WEEKLY STAFF REPORT

A review of development during the first nine months of 1935 shows increases ranging from 33.51 to 115.38 percent over the same period of 1934. As of October 1 a total of 1052 first reports had been made, an increase of 41.01 percent over 1934; 714 oil wells had been completed, an increase of 57.27 percent; 28 gas wells showed an increase of 115.38 percent while dry holes increased only 33.51 percent. Total completions amounted to 993 compared to 655 the first nine months of 1934 or an increase of 51.60 percent. That operators were drilling in the more highly prospective areas and were being generally rewarded with nice success is seen by the increase of 167.16 percent in cumulative initial oil production and 119.22 percent in cumulative initial gas volume.

The development trend did not change materially during the past week when 24 first reports were made and 24 tests completed. Included in the completion list were 16 oil wells which added 28,416 barrels to the state's cumulative initial production, one gas well with an initial volume of 13,000,000 cubic feet, six dry holes and one abandoned location. The one gas well was a wildcat test drilled to 3539 feet, three wildcats with combined total depths of 11,390 feet were dry holes, and one old well was deepened three feet. The remaining 19 completions involved 54,979 feet of drilling a total of 69,911 feet for the week. Rice county was the scene of almost half of the new work as scouts made 10 first reports; Barton county had three; Ellsworth, McPherson and Sumner counties two each; and Harvey, Haskell, Reno, Russell and Sedgwick counties, one each.

KANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CHASE COUNTY—		
Slick, Pryor & Lockhart's Leedy 4, ne sw ne 25-22s-9e	*	2587
COWLEY COUNTY—		
Lasser et al's Ferguson 2, sw sw se 21-30s-8e	20	2214
ELLSWORTH COUNTY—		
Bradley & Scanlon's Mahoney 5, se sw se 14-17s-9w	1930	3173
Empire O&G Co.'s Rolfs 11, nw sw ne 14-17s-9w	1751	3203
Skelly Oil Co.'s Dees 4, se se sw 14-17s-9w	2308	3172
Carter Oil Co. et al's Melchert 1, nw nw se 23-17s-9w	957	3198
GREENWOOD COUNTY—		
Mid-Continent Pet. Corp.'s Shadell 11, nw nw sw 15-23s-13e	100	1762
HARVEY COUNTY—		
Goering Bros.' Brainard 1, ne ne sw 3-23s-2w	*	3610
KINGMAN COUNTY—		
Skelly Oil Co.'s Radcliffe 5, nw sw nw 30-27s-10w (pb 3444)	142	3451
McPHERSON COUNTY—		
Wentz Oil Co.'s Holdeman 1, nw nw se 16-18s-1w	*	3479
Shell Pet. Corp.'s Fleming 6, ce½ nw 11-19s-2w	559	3396
RICE COUNTY—		
Gypsy Oil Co.'s Callis 3, nw sw nw 28-19s-9w	*	3311
Elwell et al's Lisk 1, ne ne sw 32-19s-9w	37	3260
Gypsy Oil Co.'s Miller 1, se se ne 9-20s-9w	51	3275
Keesling 2, sw sw sw 10-20s-9w	469	3258
Hartle 2, sw nw nw 15-20s-9w	1215	3239
Mid-Continent Pet. Corp.'s Hartle 2, sw sw nw 15-20s-9w	1512	3244
RUSH COUNTY—		
Morgan & Flynn's Hartman 1, sw sw nw 4-18s-16w	¶13	3539
RUSSELL COUNTY—		
Central Pet. Co.'s Schmidt 1, nw nw ne 30-12s-15w	lcn.	abd.
Gypsy Oil Co.'s Ehrlich 1, sw sw nw 1-14s-15w	1169	3066
J. C. Shaffer Inc's Polcyn 1, se sw ne 14-14s-15w	*	3288
STAFFORD COUNTY—		
Rose Spring Drlg. Co. et al's Toland 1, nw nw sw 2-25s-14w	*	4301
SUMNER COUNTY—		
Amerada Pet. Corp.'s Gassaway 13-A, csl se sw 14-32s-2e	15,609	2882
Shell Pet. Corp.'s Buffington 1, se sw nw 14-32s-2e (pb 2947) (otd 2103)	587	2950

*Failures; †Junked; ¶Million cu. ft. gas.

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YOAKUM PRODUCTION TEST DELAYED AWAITING CASING

WEEKLY STAFF REPORT

Midland, Texas.—Additional saturated lime zones logged by Lou G. Stogner et al's C. C. George 1, C SE SE Section 25, Block A-22, P.S.L. Survey, in drilling to 4635 feet brightens the outlook for this wildcat paving the way for the eventual discovery of a new field near the center of the north line of Andrews County, and about 7½ miles northwest of the Means field. First saturated lime carrying free oil was logged at 4330 feet, or 1077 feet below sea level, and other thin sections with good porosity have been logged at intervals, with the last showing at 4580-85 feet. The test occupies a favorable structural position, correlating about level with producers in the Means field.

Regardless of the ultimate outcome of the test on the George land, it has established sufficient structural relief to justify further exploration of the area. R. H. Gill et al's E. R. Crews 1, C SW Section 9, Block A-20, PSL Survey, Gaines County, situated about five miles northeast, logged a show of dead oil at 4921 feet, or 1724 feet sub-sea, and first sulphur water at a sub-sea depth of 1782 feet. It was abandoned in February, 1934, at 4993 feet. Top of Yates sand, a reliable marker, was logged at 3268 feet as compared to 2930 feet in the George ranch test.

Yoakum Test Deferred

Production test of Honolulu Oil Corporation and C. J. Davidson's L. P. Bennett 1, Yoakum County wildcat reported last week as showing for an oil producer from lime at 5090 feet, will be deferred another week, as casing was delayed in arriving at the well. Comparatively little trading has taken place since the first flurry that followed the discovery of 800 feet of oil in the hole, as most of the acreage in the area has been under lease. In the meantime operations have been started on two wildcats in Gaines County and on a general trend between the Yoakum County strike and production in Andrews County. E. M. Wahlenmaier and York & Harper, Inc., are drilling about 16½ miles northwest of Seminole, while W. T. Walsh and Harry Adams Corporation's test is about 2½ miles northwest of the town. Cook & Scheig, Big Spring, Texas, are making progress in financing a test in the southwest portion of the county, with location in the SEc Section 19, Block A-11, P.S.L. Survey. Mapped structure of the area overlaps the New Mexico line.

Keystone Structure

The Keystone structure, most recent major oil area uncovered in Winkler County and West Texas, contributed its first important oil production the past week when Gulf Production Company's Keystone Cattle Company 5, NWc SW Section 6, Block B-2, P.S.L. Survey, gauged 1213 barrels of high gravity oil and 18,100,000 cubic feet of gas during first 24 hours after being shot with 435 quarts of nitro in dolomite lime at 3450-3650 feet. It also produced 142 barrels of water during this period. This well occupies the highest structural position of the nine tests drilled on the structure by the company, and was plugged back from sulphur water at 3775-84 feet to 3650 feet. Keystone 8, most easterly test of the group, failed to produce in the regular lime zone, but has cored numerous oil saturated lime zones below 4000 feet. The hole was unloaded at 4463 feet, or 1499 feet sub-sea, for a production test, but did not show oil or gas. The water level could not be bailed below the 4150-foot level.

Extension of the Keystone area about two miles to the northwest is considered virtually assured by Sid Richardson et al's B. F. Jenkins-Humble 1, SEc Section 13, Block 77, P.S.L. Survey, as it is registering a high structural position in drilling below 3130 feet. Increased gas pay logged at 3067-75 feet was followed by a blowout, with the flow estimated at 20,000,000 cubic feet daily.

Two new tests for the semi-wildcat territory between the Kermit and Halley fields, Winkler County, are required by lease transactions made by independents. Cree & Hoover, veteran Panhandle operators, have been assigned lease on NE Section 25, Block B-5, P.S.L. Survey, for an oil payment and prompt drilling clause.

WEST TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANDREWS COUNTY (Means Field)—		
Shell, J. S. Means 1	720	4536
Sun, J. S. Means 1	803	4545
CRANE COUNTY (Sand Hills Fields)—		
American Liberty Oil Co.-T. B. Cranfill, J. B. Tubb-Humble 1	30	4314
CRANE COUNTY (Wildcat)—		
Gulf, M. B. McKnight 1	25	3713
CLASSCOCK COUNTY—		
Simms Oil Co., R. C. Coffee 7	499	2273
HOWARD COUNTY—		
Ambassador Oil Corp., H. White & Clay, Read 6	743	2760
Bond Oil Corp. & L. C. Howard, Rhoton 6	1012	2747
California Co., G. M. Dodge 4	268	2768
PECOS COUNTY (Taylor-Link Field)—		
Skelly, University-Bowers 3-B	235	1649
PECOS COUNTY (Yates Field)—		
Marathon, I. G. Yates 44-A	50,760	1309
REEVES COUNTY—		
Herbert Oil Co., E. M. Williams-Walker 1	*	5004
UPTON COUNTY—		
J. W. Ellis et al, J. W. Robbins 2	734	2045
A. E. Eppenauer et al, J. F. Lane-Pure 2	621	2066
Gulf, J. H. Shirk 2	560	2390
Int'l Pet. Corp., H. L. McClintic 3-B	335	3043
WARD COUNTY—		
Bolin & Lindsay Drl Co., C. Stewart 1	295	2610
Atlantic O. P. Co., J. Miller 3	319	2582
WINKLER COUNTY (Halley Field)—		
Skelly Oil Co., Halley 4	192	3150
WINKLER COUNTY (Keystone Field)—		
Gulf, Keystone 2	¶1½-166	3702
Gulf, Keystone 5	¶18-1213	3785

*Failures; †Junked; ¶Million cu. ft. gas.

Ordovician High

RUSH FOR LEASES FOLLOWS CRANE COUNTY TEST REPORT

San Angelo, Texas.—Major lease and royalty play, involving the expenditure of approximately $250,000 in cash bonuses, has swept across the south portion of Crane County and into Pecos County on the strength of Gulf Production Company's W. N. Waddell et al 1, western Crane County projected deep test, having encountered the Ordovician lime horizon at an abnormally high structural position. The well tested dry, as reported last week, when formation tester was used in lime section at 5820-6075 feet, and no change was noted in deepening to 6147 feet, or 3593 feet below sea level. An electrical formation surveying instrument was used in the open hole below the 2400-foot level. The use of this instrument and the drill stem test substantiated rumors that the company had recovered cores carrying evidence of oil saturation near the 6075-foot level. Gulf Production Company took the initiative in buying leases south and southeast to the Pecos River, although it has nearly all acreage leased solid in other directions from the deep test.

Formation samples, or identity of the Ordovician member, has not been made public by the company, as it has negotiations pending on additional acreage.

Owners of short term leases in the Sand Hills, or Tubb area, which has two small flowing wells in the 4300-foot Permian lime, are preparing to take steps to validate their holdings in anticipation of the Waddell ranch test

uncovering a second Ordovician lime producing area in West Texas.

All unleased acreage comprising the huge Cowden ranch in southeastern Crane County was purchased by Gulf Production Company and Humble Oil & Refining Company the past week. The latter spent about $100,000 cash for leases in Crane County within the past 10 days. The attitude of the companies and operators taking part in the lease and royalty play is to fortify themselves and await the outcome of deepening operations. A geological marker on the Ordovician section in a high structural position is the only marker that can set in motion a major lease play in the Permian Basin without being supported by oil or gas showings.

Humble Oil & Refining Company's L. W. Pollok-Gulf 1, northeastern Upton County wildcat, was due to advance into seventh place among the deepest tests in the world late last week, having progressed to 10,265 feet, according to late reports. It is seeking production from the Ordovician series, but at the above depth was logging Pennsylvanian limestone.

NORTH TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
L. T. Burns et al, J. Morbitzer 1	*	2064
York Est. 2-A, sec 1583	*	1419
Burns & Long, York 5, sec 1583	100	1314
W. B. Hamilton Pet. Co., W. S. Ikard 18	*	2000
J. Longley 6, blk 98	75	1159
Perkins-Cullum Oil Co., Falls 197, blk 56	*	1230
Wichita Prod. Co., W. Pace 2, blk 163	10	1286
W. Pace 3, blk 163	*	1292
BAYLOR COUNTY—		
Consol'd Oil Co., Portwood 7-R, sec 1579	1200	1360
Consolidated & Pet. Prod. Co., Portwood 26-D, sec 1579	725	1380
Ray & Staniforth, Portwood 19-C, sec 1574	600	1355
Portwood 20-C, sec 1574	2400	1355
CLAY COUNTY—		
The Texas Co., L.R.&F.M. Goetze 1, blk 2	*	1345
COOKE COUNTY—		
Ruwaldt & Couch, Andress 1-A	*	1462
Wrightsmith Oil Co., Stelzer 2	80	855
JACK COUNTY—		
G. A. Erickson et al, W. E. Hunt 2	*	554
C. L. Germany et al, Gillespie 1	*	515
Gray Drl. Co., Shown 2, blk 1	*	296
MONTAGUE COUNTY—		
Lesh & McCall, R. W. Cunningham 7-B	20	960
Ross Drl. Co., N. J. Howard 3	5	1173
N. J. Howard 4	5	824
United Producers Co.-Conoco, W. R. Rich 1	*	2925
THROCKMORTON COUNTY—		
Bearman Oil Co., Kirk Ledbetter 3	30	780
Kirk Ledbetter 4	*	790
WICHITA COUNTY—		
Boardman Bros., J. L. Jackson 6, blk 15	*	792
J. E. Keller et al, R. J. Bradley 1	*	501
H. B. Mitchell et al, Sue Mitchell 1, blk 21	*	1268
Waggoner Ref. Co., Waggoner 1-AA, sec 148	*	1744
YOUNG COUNTY—		
J. W. Culbertson et al, E. C. Stovall 2, sec 2496	*	414
W. R. Weaver 1, sec 2950	*	421
Tom F. Hunter et al, J. B. Taack 1-B, sec 158	*	1201
W. E. Nunneley et al, J. L. Boone 1	*	481
E. R. Perkins et al, Fay Clarke 1, sec 218	*	1192

*Failures; †Junked; ¶Million cu. ft. gas.

TEXAS PANHANDLE
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Gulf, B. F. Block 5	465	3079
E. Cooper 10	484	3032
GRAY COUNTY—		
Kewanee O&G Co., R. Arnold-Morgan 7	778	3299
Magnolia, G. H. Saunders 1-B	240	2919
W. J. Moran etal, L. Holmes 1	376	3124
Stanolind, W. G. Kinzer 2	576	3302
W. G. Kinzer 4	492	3300
The Texas Co., A. E. Gething 2	286	2721
HUTCHINSON COUNTY—		
Gulf & Panhandle Ref. Co., C. L. Dial 54	98	2936
C. L. Dial 55	249	3049
Int'l Pet. Corp., T. Lewis-Badger 21	563	3028
WHEELER COUNTY—		
Alma Oil Co., Johnson-Gulf 12	903	2468
Skelly Oil Co., D. E. Johnson 7	¶15-5194	2515

*Failures; †Junked; ¶Million cu. ft. gas.

PANHANDLE GEOLOGY

Tulsa.—"Geology of Texas Panhandle Oil and Gas Field" is the title of a booklet by Henry Rogatz, consulting geologist of Amarillo, Texas. It is reprinted for private circulation from The Bulletin of The American Association of Petroleum Geologists, Volume 19, Number 8, August, 1935. The book is well illustrated with geological cross sections. In the Panhandle oil is found in formations along the flanks of an old buried granite ridge trending northwest and southeast. Gas is found in formations along and on the crest of this ridge. These conditions make the discussion of Panhandle geology very interesting.

Extend Long Lake

WELL ONE MILE NORTHEAST MAKES OIL AND GAS

WEEKLY STAFF REPORT

Tyler.—Oil producing zone in the Long Lake field, southwestern Anderson County, was extended about one mile to the northeast across the Trinity River into Leon County by the completion of Tide Water Oil Company and Texas Seaboard Oil Company's A. W. Johnson 1, located in southwest portion of 425.81-acre lease, Simon Sanchez Survey No. 7, with production rated at from 50 to 100 barrels and in excess of 50,000,000 cubic feet of gas daily from Woodbine sand topped at 5221 feet. The sand section was cored to 5313 feet, or 5083 feet sub-sea, and a string of seven-inch pipe cemented at 5307 feet. The hole was plugged back into the casing because of salt water, and perforations made with gun at 5239-48 and 5263-65 feet. This new producer is about one mile northwest of the partnership's G. W. Burkett 1, which extended the gas area into Leon County last August, with considerable distillate showing from perforated casing at 5244-60 feet.

Casing perforating gun was scheduled to be used late last week on Tide Water Oil Company and Texas Seaboard Oil Company's N. N. Wills 21-A, situated in the heart of the Cayuga field, after plugging back to Red Beds series in Basal Trinity sand at 9082 feet to 8734 feet. The lower Trinity carried hot salt water. Seven-inch pipe cemented at 8750 feet will be perforated above the cement plug to try and develop gas production from the upper section of the Trinity series.

Plugging orders have been issued for L. B. Prior and A. B. Edwards' W. R. Poston 1, NWc 50-acre lease, Jacob Poston Survey, after an unsuccessful try for production several miles southeast of nearest production in the East Texas field, Rusk County. A 4000-foot contract was fulfilled. The Woodbine zone near the 3800-foot level was being relied upon to produce by this wildcat project.

Southwestern Cass County added a failure the past week with the completion of Stanley A. Thompson, Fort Worth, and others' W. A. Hooton 1, located in northwest part of 498-acre tract, John H. Kernels Survey, with the hole bottomed in Georgetown lime at 4039 feet. The hole was drilled within an elapsed period of 10 days after cementing surface pipe at 105 feet. Cass County is void of production except for a single gasser completed last August in the southeastern corner of the county and opposite the Rodessa field by United Production Corporation. The latter concern has made location for a new test on the Lake Holt, or Thurmond Unit, located 1320 feet from east and 1370 feet from north lines of John H. Coleman Survey, about five miles

southwest of the field. Other owners of Cass County leases in close proximity of the Rodessa field have been reluctant to try for extensions to the oil area.

FORCE OFFSETS

Smaller operators keep East Texas active

Tyler, Tex.—Independents accounted for more than 65 percent of completions the past week in the East Texas field, and by pressing their claims for new premits to drill are preventing the majors from terminating their active development programs. Large percentage of the new work carried on by the independents centers on edge leases, but many of these new projects force offsets by majors. There were 61 completions reported the past week, including one failure and a junked test. The independents drilled 40, and also completed 10 of the 13 new wells that lacked sufficient energy to register natural flow.

Although proration has forestalled the arrival of a serious bottom hole water problem, property owners have been hit sufficiently to make special efforts toward retarding the eventual water disposal problem by restricting new wells in the disturbed areas to a shallow penetration of the oil sand. Completions the past week revealed that 22 wells did not drill or core more than four feet of the sand section, while nine of these penetrated one foot or less. Four others listed two feet of penetration, and six took in about three feet of the Woodbine saturated sand. Most of these wells scored high initial yields through tubing, but gauges were for brief periods as a safeguard against channelling the formation and pulling in bottom hole water.

The single failure for the week was Humble Oil & Refining Company's W. C. Mackey 21, situated on 198½-acre lease, H. F. Rogers Survey, near east edge of production in northern Gregg County. No sand was logged in drilling to Georgetown lime at 3631-40 feet. Two other tests on the lease encountered a similar condition.

RESTRAIN GAS RULE

Austin.—The M & M Pipe Line Company and Humble Oil & Refining Company have obtained temporary restraining orders in Ninety-Eighth District Court enjoining the Texas Railroad Commission from enforcing its gas rate order issued September 30.

The order contains several features new to gas rate regulation in Texas. It fixes the rate for gas at the well to be paid the producer by the purchaser. The rate the transporter should charge distributing companies at the city gate, the domestic rate, and the rate for rural consumption.

This is the first attempt by the commission to fix the rate charged for gas at the well, or that charged rural consumers.

A hearing on the petition for a permanent injunction has been set by the court for October 26.

TEXAS PERMITS DROP

Austin.—Permits for drilling 123 new wells in Texas were approved by the Railroad Commission last week, a sharp decline from the 206 allowed the week before.

North Texas District reported the most new wells, a total of 30, which included 12 in Archer County and 10 in Young County. In the adjacent West Central Texas district there were seven permits, and East Central Texas listed three.

The Gulf Coast operators reported 29 new wells with 16 in Harris County, and there were 22 in Southwest Texas.

In the Panhandle 15 new locations were reported and there were five in West Texas.

East Texas operators obtained permits for only 12 wells, of which six were in Smith County, five in Gregg County and one in Rusk County.

EAST TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
T. C. Adams et al, Deason 2 (3-ac).	500	3740
Arkansas F. O. Co., Wheelis 12 (80½-ac)	7200	3703
Leo Bell et al, Wooley 1 (5-ac)	250	3654
R. B. Bryant et al, Moore 2 (5-ac).	120	3650
Cron & Gracey, Thompson 3 (6.24-ac).	5000	3635
Elm Oil Co., Eaton 12-B (21.52-ac)	†	3760
W. H. Gant-Garvin & Wegener, Edwards 3 (52½-ac)	300	3619
Edwards 4 (52½-ac)	500	3600
Georgian Corp., Kee 2	750	3771
Guthrie Oil Corp., Frederick 3-A, Tr 1 (6.78-ac)	720	3610
W. L. Herrin et al, Frederick 3 (8.4-ac)	105	3617
W. B. Hinton et al, Mayfield 16 (94.39-ac)	2100	3780
Humble, Piercy 17 (138.34-ac)	5500	3754
Lide-Tayloe Oil Co., Young 7 (40-ac)	5000	3741
Mabee Consol'd Corp., Brett 11 (40-ac)	5500	3750
Manahan Oil Co., Cook 7 (25-ac)	7500	3763
Marathon, Griffin 9 (65.61-ac)	160	3672
Price 22 (205.59-ac)	600	3652
M. H. McMurrey, Tr., Turner-Gulf 23 (83-ac)	7600	3836
Milford Oil Co., Finney 5 (40-ac)	7500	3720
J. M. Rush et al Cooper 1-B (18-ac)	100	3675
Sinclair Prairie, Wiley 11-A (312.11-ac)	3000	3810
Sun, Henson 23 (216½-ac)	4600	3670
Texas Canadian Oil Corp., Pace 1-B (19.7-ac)	2500	3853
Texas Co., Wilson 15 (134¾-ac)	5600	3660
Tide Water, Irion 12 (73.55-ac)	6400	3705
Trentman Oil Corp., Hodges-Greve 5 (12½-ac)	9500	3764
R. H. Vise et al, Alford-Shell 6 (120-ac)	7500	3814
KILGORE AREA—		
Adams & Riley, Knowles 2, blk 134	360	3606
Bessie DeMayo et al, Benson-Tidal 4 (34-ac)	5600	3739
Humble, Sexton 29-B (258.6-ac)	1000	3675
Kilgore Ref. Co., I&GN Co. 14 (19.58-ac)	720	3560
C. H. Lyons et al, Richards-Shell 7 (150-ac)	40	3545
Richards-Shell 8 (150-ac)	25	3499
M. H. McVey et al, Richards 2 (145-ac)	350	3512
Meco Prod. Co., Williamson 5 (150-ac)	600	3709
Tide Water, Laird 3 (18-ac)	360	3711
Westheimer-Daube, Peterson 9 (40-ac)	9600	3679
LONGVIEW AREA—		
Arkansas F.O. Co., Orms 10 (56.44-ac)	6500	3556
Smith 11-B (80.56-ac)	7500	3534
Burk Royalty Co., T&P Ry. Co. 1, blk 67 (3-ac)	8000	3598
T&P Ry. Co. 1, blk 70 (3-ac)	8000	3575
T&P Ry. Co. 1, blk 74 (3-ac)	8000	3587
Conservative Oil Co., Mackey-Humble 9 (147.1-ac)	6000	3669
Day & Co., Victory 3 (41.3-ac)	4000	3647
Empire, Jeter 11 (123-ac)	1000	3597
Humble, Lawrence 21 (164.7-ac)	8800	3653
Mackey 21 (198½-ac)	*	3640
Smith 33 (245.98-ac)	5500	3668
Idaho Oil Co., Landers 3 (2.02-ac)	9500	3672
C. A. Lester & Duffield, Graves-Shell 8 (80-ac)	6800	3666
Metaire Oil Corp., Sheppard 11 (57.54-ac)	7200	3691
Cleo G. Miller et al, Miller 1 (20-ac)	4000	3805
Red Iron Drl. Co., Phillips 3 (23-ac)	1000	3665
Shell, Slaton 18 (123.65-ac)	9000	3633
Simms Oil Co.-Stanolind, Flewellen 37-B (374-ac)	5500	3750
E. L. Smith Oil Co., Cabbiness 2 (83-ac)	3000	3630
H. R. Smith, Inc., Bauknight 10 (70.6-ac)	10,000	3602
Sun, McKinley 13 (82.3-ac)	9000	3659
Texas Co., Culpepper 6 (61.57-ac).	60	3739
Tide Water, Castleberry 18 (202-ac)	1000	3602
VAN ZANDT COUNTY, (Van Field)—		
J. Beren et al, Bryant 1	*	1325
Palmer 1	*	1453
A. A. Geyer et al, Crim 1 (41.6-ac).	*	3017
Humble, Oliver 2 (59-ac)	3000	2943
York 7 (85-ac)	300	2962
CASS COUNTY—		
Stanley A. Thompson et al, W. A. Hooton 1	*	4039
RED RIVER COUNTY—		
J. S. Abercrombie Co.-Harrison Oil Co., So. Pine Lumber Co. 1	*	892
RUSK COUNTY—		
J. W. Shipman et al, Citizens Nat'l Bank-Burton 1	†	2780
HOPKINS COUNTY—		
D. A. Hale et al, L. N. Hall 1	*	2950
UPSHUR COUNTY—		
Thos. D. Humphrey et al, Frank Robinson (Flewellen) 1	*	3889
Joe A. Papadakis et al, W. H. Allen 1	*	3776
LIMESTONE COUNTY—		
J. P. McKinney et al, Boyd 2-S	*	1550

*Failures; †Junked; ¶Million cu. ft. gas.

NEW FAULT FIELD

San Antonio.—A new Austin chalk producing area on the Balcones fault trend was definitely established last week through the completion of several small producers at the town of Staples in northern Guadalupe County.

Hopkins Brothers et al's F. C. Gabriel 1, south corner of a 65-acre tract in the George Allen Survey, topped Austin chalk at 705 feet, drilled to 767 feet, set 690 feet of casing, and acidized. The well bailed oil at the rate of about 28 barrels per day and is to be put on pump immediately. It made several heads of oil, but does not have sufficient power to flow.

One half-mile away, Henedena Oil Company's R. P. Lowman 1, G. Allen Survey, has been completed at 720 feet, producing between 10 and 12 barrels per day on pump. It has casing set at 694 feet, top of the Austin chalk. This well also was acidized. Henadena Oil Company is composed of the firm of Sterling and Wilson of Houston. This test is within 25 feet of the Humble Oil & Refining Company's Lowman, drilled several years ago. It showed some oil in the chalk and a slight bit of saturation in the Edwards lime.

As a result of this strike, there has been a slight flurry of lease trading, especially in town lots in Staples, located between the two producers.

The well is on strike with the Larremore pool, a Roxana development dating back to the earlier days of the fault line development. This field, located in Caldwell County, has several Edwards lime producers at 1300 feet. One new producer is in the making in C & C Fuel and Oil Company's Jolly 1, which topped the Edwards lime at 1296 feet, cored in several feet and is running casing.

Plymouth Looks Big

NEW SAND AND EXTENSION WELL IS COMPLETED

WEEKLY STAFF REPORT

San Antonio. — Establishment of a third producing level in the Plymouth field, San Patricio County, and further extension of the producing zone now makes this area appear of major importance. Fully 1000 acres have been placed in the area considered to be proved and the only definition to the field has been to the southwest.

Magnolia Petroleum Company's Corpus Christi Bank and Trust Company 2, Hunter Survey, 660 feet south of any production in the field, has been completed in a new and deeper sand at 5907 feet. The well showed 140 barrels of oil in 16 hours through ⅛-inch choke under tubing pressure of 800 pounds and casing pressure of 700 pounds. After the well had cleaned itself, however, a gauge through ¼-inch choke showed 24.57 barrels per hour through ¼-inch choke, pressures being 900 pounds on the tubing and 1050 pounds on the casing. Oil is 38 gravity.

The new producer is in close proximity to leases held by Stanolind Oil & Gas Company, Humble Oil & Refining Company, and Sun Oil Company, none of which have production in the field at this time. Sun Oil Company entered the play several weeks ago staking location for J. M. Hunt 1, offset to production. The well is now drilling below 4000 feet.

Plymouth Oil Company is completing several wells in the main field. Welder 15-C is waiting on cement after setting casing to total depth of 5624 feet. Pipe will be perforated for production, oil sand being logged at 5618-24 feet. Welder 16-C has set casing above sand, logged at 5618-34 feet. Welder 17-C is in the shallower sand at 5518 feet, casing already having been set. Same company has located Welder 18-C, 19-C and 20-C. All wells are located in Section 48 with the exception of 17-C, which is on the north line of Section 49.

Heep Oil Corporation is completing Welder 5-F at 5635-45 feet and is drilling Welder 3-F, both in Section 46. Conroe Drilling Company is making hole below 4100 feet in Welder 1-G, Section 47.

Mercedes Well

Union Sulphur Company was completing its third producer in the deep Mercedes field of Hidalgo County late in the week. The newest producer is located on Lot 2082, Block 86, slightly more than 600 feet northwest of the discovery well.

The hole was drilled to 7529 feet, casing set on bottom and perforated with 10 holes at 7494-7501 feet. It swabbed a little 54 gravity oil at this level, but not sufficient to flow.

Same company's American Rio Grande Land and Irrigation Company 6, 4500 feet northeast of No. 1, is drilling at 2150 feet after setting surface string at 1240 feet.

S. J. Sloan et al's Brock and Showers 1, Lot 9, Block 16, Porcion 80, west of Mission in Hidalgo County, drilled to 6003 feet, ran an electric formation tester which showed 29 feet of sand, upper 16 feet probably carrying gas and lower 13 feet oil, between 4600 and 4700 feet. The well is shut down for casing, which will be set at 4700 feet.

Another interesting wildcat in Hidalgo County, is Munday and Stevens' F. B. Guerra 1, Tract 12, Porcion 41, 2000 feet north of the east end of the Samfordyce field, and across the gas zone, is rocking in with gas at a total depth of 3030 feet. The well had a sand with shale streaks showing oil between 2990-3027 feet, atop which a string of casing has been set.

New Gas Field

The Texas Company et al's J. J. Warden 1, western Victoria County, definitely established a new gas field in the Heterostegina zone of the Oligocene last week when it was completed in sidetracked hole at 4488-96 feet. The well previously had drilled through the horizon to a total depth of 5629 feet, but plugged back to 4200 feet and drilled to the producing level. Elevation is 110 feet, derrick floor.

The well is on a block of acreage owned by The Texas Company, The California Company and Shell Petroleum Corporation. The well, however, was drilled by The Texas Company. It is on trend with the Greta and Refugio fields, and is about midway between the Coletto Creek and McFaddin fields.

The exact location of the new producer is described as follows: commence at southwest corner of the tract, thence north 55 degrees east 4200 feet, thence north 35 degrees west 466 feet in the Edward McDonough League, 12 miles south of Victoria.

There was no oil with the gas. Pressures, closed in, were registered at 1800 pounds on the tubing and 1840 pounds on casing.

Wildcats Active

MANY SOUTH TEXAS AREAS GETTING ATTENTION

San Antonio.—A deep wildcatting play, involving the drilling of nearly a dozen wells, is under way in Nueces County. Several interesting geological and geophysical prospects are being given complete tests with the drill.

Failing to find production in the regular sands of the field, Magnolia Petroleum Company is making hole below 6101 feet in hard sand in Bobby Baldwin 2, Section 165, about 2/3 miles southwest of the Baldwin field.

In the southern end of the Saxet field, Shell Petroleum Corporation is coring below 6425 feet in Ed. F. Flaot 1, Tracts 9 and 10, H. B. Sheppard Farm Lots. This well has been cored almost solidly from 4000 feet to the present depth and the information resulting is of tremendous importance.

Northwest of the same field, Richardson and Thomas are drilling below 5350 feet in Page Brothers 1, Share 2, George Franks Subdivision.

In the northwestern portion of the county, Bluff Petroleum Company's C. Bluntzer 1, Share 6, Casa Blanca Grant, was delayed account of high water after drilling several hundred feet.

J. K. Culton is drilling surface plugs on H. B. Baldwin et al 1, located in Block 20, Russel Farm Blocks. The well is being drilled on a 1000-acre block just west of the town of Corpus Christi and three miles east of the Saxet field.

La Jita Corporation's Richard King Estate 1, SE SW Section 22, King Ranch subdivision, is preparing to gun perforate casing for a series of tests. The well drilled to a total depth of 6008 feet, and ran an electric formation testing device. Sand sections were indicated at 3945 feet, 4400 feet, 4490 feet, 5130 feet, 5520 feet and 5830 feet. Casing was run to 5220 feet and first perforation will be opposite a horizon at 5130-48 feet. The well previously showed nice volume and pressure of dry gas at several upper levels.

Santa Clara Oil Company has staked location for Clara Driscoll Sevier 1, 4456 feet from the north line and 990 feet from the east line of William Gamble Survey, Abstract 6, 1¾ miles northeast of the town of Driscoll. Rig is to be moved to location shortly.

Two other deals have been completed for wells to be drilled immediately, but details are lacking.

A resumption of wildcatting along the Government Wells and Mirando

trends is coming as a direct follow up to several new discoveries. Webb, Duval and McMullen Counties are the center of considerable blocking and exploration operations.

The new Charamousca field, just southwest of SRC field and in northwestern Duval County, has turned attention to a possible trend north through the older Mirando district across the northwestern portion of Duval County into McMullen County.

On the above trend, Magnolia Petroleum Company has located Duval-Sentz 1, southeast corner of Section 165. Texla Oil Company's Nueces Land and Cattle Company 1, SW NE Section 101, still farther northeast and near the McMullen County line, has been spudded. Several more blocks have been taken, but the deals are not in a sufficient state for announcement.

The Loma Novia-Government Wells trend, further enhanced by the several new strikes in the extreme northern portion of Duval and southern McMullen Counties, is a very hot zone from a wildcatting standpoint. Blocks of only a few hundred acres have been sufficient to warrant drilling of tests. Two wildcats, one on the Hoffman ranch and another on the Sutherland ranch are projected, south of the Hoffman field. California Company is drilling a well on the Gruy Estate in the southwestern trend from these fields. Santa Clara Oil Company is drilling one well on the Corbett land in the northeastern portion of Duval County.

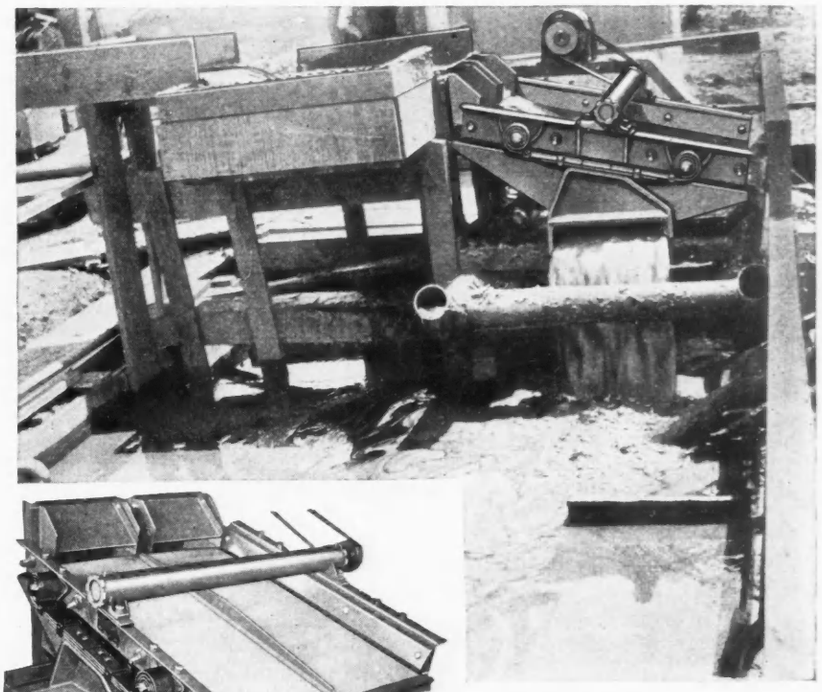
Magnolia Petroleum Company com-

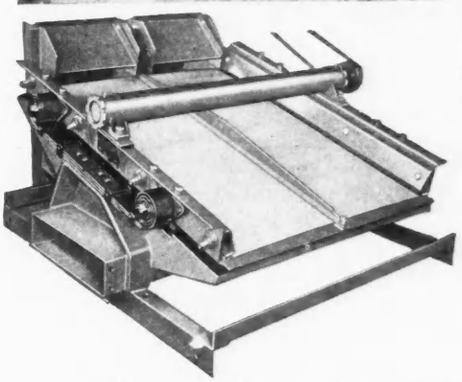
SOUTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BEE COUNTY—		
Mills Bennett, Roper 2, sw sec 9 (W Tuleta)	*	3962
Sun Oil Co., C. S. Page 3, N. J. Young sur (Dirks)	450	3873
BEXAR COUNTY—		
Richcul Oil Co., C. H. Terrell 2, Baerrera sur (Von Ormy)	4	760
DUVAL COUNTY—		
Atlantic Oil Producing Co., J. F. Welder Heirs 3, ne sec 385 (Seven Sisters)	650	2515½
Duval Oil Corp., C. W. Hahl 1, blk 6, sec 78 (Loma Novia)	725	2641
Magnolia, Duval Ranch 2, sec 100 (Piedra Lumbre)	45	1973
Marzo Oil Co., E. R. Hagist 1, 1650 ft nl, 1170 ft wl of sec 269 (Hagist) discovery well	100	2121
Plymouth Oil Co., Cuellar 1-A, 220 ft nwl and nel sec 123	*	3143
Smith & Hammill, M. C. Hubbard 9, sec 77 (Loma Novia)	900	2628
M. C. Hubbard 12, sec 77 (Loma Novia)	900	2626
M. C. Hubbard 24, sec 77 (Loma Novia)	850	2645
Texas Co., H. Wendt 8, sec 68 (Loma Novia)	720	2619
GOLIAD COUNTY—		
Magnolia, Guy Porter 9, B&B sur. No. 23 (N Pettus)	50	3693
GUADALUPE COUNTY—		
Henadena Oil Co., R. P. Lowman 1, 2200 ft swl, 950 ft nwl of tr, G. Allen sur (Staples)	10	720
Hopkins Bros. et al, F. C. Gabriel, 150 ft sel & swl of 65-ac tr, Geo. Allen sur, (Staples)	28	767
HIDALGO COUNTY—		
Ralph E. Fair, Inc., F. B. Guerra 7, Tr 154, por 39 (Samfordyce)	450	2796
Rogers O&G Co., F. B. Guerra 2-B, sh 254 por 40 (Samfordyce)	350	2777
JIM HOGG COUNTY—		
Macon Pet. Co., Y. Gomez 1, 990 ft sl, 330 ft wl of sec 105	*	3010
LIVE OAK COUNTY—		
Houston Oil Co., G. Frederick 2, Jane Curry sur (N Lucas)	*	lcn.
MEDINA COUNTY—		
F. H. Eckert & Son, M. Keller 1, 215 ft nl, 2684 ft wl of 230-ac tr in Northington sur No. 8	*	1220
Gates & Hill, Odem 2, 1150 ft wl, 435 ft sl of 200-ac lease in H. Castro sur No. 174	*	328
NUECES COUNTY—		
Houston Oil Co., Rand Morgan 6, sec 7, Range 5 (Saxet)	450	4866
Magnolia, Bobby Baldwin 3, BS&F sur No. 165 (Baldwin)	560	3876
REFUGIO COUNTY—		
United Prod. Co., M. F. Lambert 2-A, E. W. Harper sur (Greta) owdd, former td 3520 ft	*	6550
SAN PATRICIO COUNTY—		
Magnolia Pet. Co., Corpus Christi Bank & Trust Co. 2, H. H. Hunter sur (Plymouth)	600	5911
STARR COUNTY—		
Lindberg & Davis, Kelsey Bass 7, 1675 ft nl, 1500 ft wl nw¼ sh 6, por 75-76-77 (Los Olmos)	*	424
Skelly Oil Corp., Seabury 4, Tr 256, por 38 (Samfordyce)	650	2814
TRAVIS COUNTY—		
J. E. Robertson et al, J. F. Smith 1, L. Kimbor sur (Kimbro)	*	715
VICTORIA COUNTY—		
Texas Co. et al, J. J. Warden, commence sw cor of tr, thence n 55 degrees e 4200 ft, thence n 35 degrees w 466 ft, Edward McDonough League, opens new field, pb 4200 ft dr 4496 ft in sdtr hole	¶20	5629
WEBB COUNTY—		
Mills Bennett, M. Lopez 1, Tr 6-B, sec 73 (Lopez)	198	2206
O. W. Killam, A. M. Bruni 40, blk 32, sec 10, Arispe Gr. (Cole)	*	3607
Magnolia, Brennan-Benavides 14, blk 218, Arispe Gr. (Cole)	450	2734
S. Benavides 3-V, blk 324, Arispie Gr. (Cole)	500	2811

*Failures; †Junked; ¶Million cu. ft. gas.





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pleted two wells and was finishing the third in the 2700-foot sand area of the Cole field, Webb County. Brennan-Benavides 14, Block 218, showed a little water in sand at 2720-34 feet, but after plugging back was finished for 12 barrels per hour through 5/16-inch choke. Brennan-Benavides 15, Block 153, was running liner to complete in sand at 2753-64 feet. S. Benavides 3-B, Block 324, was tested at 14 barrels per hour through 5/16-inch choke, total depth being 2811 feet.

In the Lopez field, several miles to the north, Mills Bennett's J. Lopez 6, Section 73, was coring for the 2200-foot Mirando sand production. It is the most southwesterly well in the field. Same operator completed M. Lopez 1 for 198 barrels per day from 2206 feet.

A Webb County wildcat of considerable interest is Magnolia Petroleum Company's Volpe Brothers 1, northwest corner of Section 485, north of the Carolina-Texas field. This well was drilling at 1560 feet, projected as a deep test. While no announcement had been made, it is said that the hole will be carried to at least 8000 feet if production is not found at a shallower depth. The present record deep test for the area is 7725 feet, a test drilled by the Humble Oil & Refining Company on the Kohler ranch several years ago.

Two other important wildcats have been started in Webb County. O. W. Killam has begun the first of a series of tests on the Ortiz ranch, a 73,000-acre block recently leased. The first well is located on Porcion 17, six miles northwest of Laredo. French Oil Corporation spudded in Juan Guerra 1, a 3100-foot test on Block 14, in the southeast quarter of Section 334.

Bee County

Bee County field activity reached the lowest level within a year during the past week with only seven rigs in operation. Drilling campaigns are virtually complete in all producing areas where offset programs were being carried on.

Hill, West and Kleiner apparently extended the West Tuleta field slightly to the southwest by coring Pettus sand at 3931-37 feet in G. A. Ray 1, W. B. Blanchard Survey. The well is testing the showing, which is considered sufficient to make a producer. In the same field, Stanolind Oil & Gas Company completed W. G. Walton 3, Section 21, flowing oil at 3956-60½ feet. The well has not been gauged.

Brooks County

United Production Corporation's Kathleen Jones Hocker 1, on the Palo Blanco structure in Brooks County, is washing down and breaking out bridges preparatory to drilling deeper from 5351 feet. This well several weeks ago blew out from the above depth, flowing a large volume of salt water and gas. It was controlled by pumping a large quantity of commercial mud. A new string of 10½-inch surface casing has been set to 980 feet inside of a shorter string of 12½-inch pipe.

This well is located in the Palo Blanco de Maguellos Grant, ¼-mile southwest of Allen and Morris 1-A, a gasser at 1190 feet.

Van Vleck Test

BEING COMPLETED IN NEW HORIZON FOR THE FIELD

WEEKLY STAFF REPORT

Houston. — Skelly Oil Company's Cobb B-3, 2235 feet northeast of the discovery well, Van Vleck or Bay City field, M. Cummings Survey, Matagorda County, was preparing to be completed at 8230 feet, which opens a new sand for the field.

Late October 11 casing had been perforated from 8226 to 8230 feet with eight holes. The well is said to be showing pipe line oil with no water. This four feet of sand tested from 1.1 percent to 2.5 percent saturation.

When the well was drilling to 8708 feet, total depth, a gas sand was found from 8204 to 8218 feet and a good oil sand from 8218 to 8245 feet.

If this well proves productive it will open a new producing horizon for the field. However, Cobb B-3, encountered several new sands while drilling to the bottom and all these sands will be tested in the near future.

Skelly Oil Company has made location for Johnson 1, 1950 feet south of the discovery well. It is 487 feet from the east line and 395 feet from the north line of a 72-acre tract in the M. Cummings Survey.

Hamman Exploration Company has announced a wildcat location to be drilled near the town of Bay City. The location is on a block of approximately 6000 acres. The well is located 330 feet from the east line and 330 feet from the south line of the Mrs. May Cleveland 68-acre tract in the E. Hall Survey, Abstract 45.

The well is to test the Marginulina-Frio sands which are being developed in the Van Vleck field by Skelly Oil Company.

Sun Oil Company has made location for a well on the east flank of the Hawkinsville dome in Matagorda County. Sun Oil Company's Craig 1, is 1546 feet southwest from the north corner along the northwest line of lease and Survey, and 157 feet south at right angles. The well is located in the Thos. Williams Survey. Sun Oil Company leased considerable acreage in this area. Gulf Production Company has drilled around a dozen wells on this prospect without finding commercial oil.

Extend Hastings

The Hastings field, Brazoria County, was extended 2000 feet west during the past week when Humble Oil & Refining Company completed Cannon 1, H. & T. B. Survey, No. 36, for 30 barrels per hour from 6100 feet.

The plugs were drilled and the well came in for the above initial production through a quarter inch choke with 900 pounds on the tubing and 850 pounds pressure on the casing.

Humble Oil & Refining Company has made location for Cannon 2. It is 330 feet south of the north line and 330 feet west of the east line of H. & T. B. Survey No. 36. It is 660 feet north of Cannon 1.

Stanolind Oil & Gas Company's Guido 2, 750 feet west of Guido 1, H. & T. B. Survey, No. 36, was completed for an oil producer from 6080 feet. It made 243 barrels the first 10½ hours through a quarter-inch choke. Tubing pressure was 800 lbs; casing pressure 825 pounds.

Pioneer Exploration Company's Willray 1, half mile northwest of Huntington, D. C. Welch Survey, Angelina County, was shut down at the close of the week after showing approximately 25 barrels per day by heads of clean oil through two-inch tubing with 100 pounds pressure from 1429 feet.

This wildcat is the second well in this area to show oil and gas. Lee Tex Oil Company's Guissler 1, also showed oil and gas and was later abandoned.

Another producer was added to the southeastern flank of the Batson field Hardin County, during the past week.

TEXAS GULF COAST

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANAHUAC—		
Sun, White 2	565	7082
ARIOLA—		
Republic Prod. Co., Ariola 7-X	*	4655
BATSON—		
John Deering, Hooks 4	340	5110
CLAY CREEK—		
Sun, W. Schirmer 4	25	1157
HASTINGS—		
Humble, Cannon 1	720	6100
Stanolind, Guido 2	576	6080
HUMBLE—		
Sun, River 91	194	1302
LIVINGSTON—		
Humble, Grandbury 14	552	4210
Sun, Pratt 8	85	4235
MANVEL—		
Texas Co., Houston Oil Field Association 14	350	4097
PIERCE JUNCTION—		
Navarro Oil Co., Cain 3-A, (wo)	18	6616
Wright et al, Higgins 1	300	4075
PLEDGER—		
Humble, Block 1	¶½	6750
SPINDLE TOP—		
Stanolind, Gladys City 83	60	3096
TOMBALL—		
Humble, F. Kobs B-4	315	5610
FT. BEND COUNTY—		
Thompson Drilling Co., Brown 1, Pilant Lake, Geo. Menefee sur	*	6035
WHARTON COUNTY—		
Navarro Oil Co., Schoelman 1, Mancha prospect, N. Mancha sur	*	7732

*Failures; †Junked; ¶Million cu. ft. gas.

John Deering's Hooks 4, offset Hooks 3, was completed at 5110 feet in sand showing oil. Top of the oil sand was found at 5085 and seven-inch casing was set at 5080 feet. The well came in for 340 barrels per day through a quarter-inch choke with 440 pounds on the tubing and 680 pounds on the casing.

Sun Oil Company has made location for J. E. Hughes 1, 2000 feet southeast and 1000 feet southwest of the northwest corner of W. C. M. Baker Survey, in Galveston County. The well is located approximately six miles southwest of the Hitchcock prospect in Galveston County.

Sun Oil Company worked the area with reflection seismograph in 1935. The operators took several thousand acres of the Hughes ranch for the exploratory work. The new prospect is called the Green Lake prospect.

In Brazoria County, Humble Oil & Refining Company's Block 1 was completed during the past week for a gas well to extend the Pledger field three quarters mile in the northeastern direction. The well was brought in from 6750 feet making 470,000 cubic feet of gas daily through a one eighth-inch choke. Tubing pressure was 2300 pounds; casing pressure 2400 pounds.

The well topped the Discorbis at 5682 feet, Heterostegina 5894, Marginulina 6306 and the Frio at 6550 feet. It had sands with streaks of shale from 6660 to 6750 feet.

Wharton County

Sterling Oil & Refining Company's F. Janek 1, East Bernard Prospect, Wharton County, J. Scott Survey, was shut down at the end of the week after making a production test from 7863 to 7875 feet.

A drill stem test was made and the well made gas and flowed all one night and then started making salt water. The bottom of the hole is at 8667 feet and five-inch casing was set at 7831 feet.

Navarro Oil Company's E. P. Schoelman 1, Mancha prospect, N. Mancha Survey, Wharton County, was completed as a dry hole at 7732 feet after failing to show anything of commercial value.

In Ft. Bend County, Thompson Drilling Company's Brown 1, Pilant Lake prospect, Geo. Menefee Survey, was abandoned at 6035 feet, failing to show oil or gas.

In the area where Turnbull & Irwin drilled Hermann Hospital 1, dry some time ago it is reported that Continental Oil Company took a geophysical option of the Sugarland properties.

DIRKS ALLOWABLE

Austin.—An order was issued by the Texas Railroad Commission last Friday fixing an allowable of 60 barrels per well for the Dirks field, Bee County. It is effective as of October 1.

The new order replaces on effective one September 23, providing for a per well allowable of 50 barrels.

The new order, which is to remain in effect until potential tests in the field have been made and increases the top allowable 510 barrels to 3025 barrels per day.

DEFINE ANAHUAC

Northeast failure looms and lessens field's size

Houston.—Woodley Petroleum Company's A. G. Blanke 1, Section 41, H. & T. C. Survey, Chambers County, one and three quarters miles northeast of R. A. Mason & Glenn H. McCarthy's White 1, was drilling at 7394 feet after coring a salt water sand from 7248 to 7256 feet.

This well is the key well for the Anahuac field and is being watched closely. It has the position to tell if the field is going to be comparable to that of Conroe in Montgomery County. With the apparent failure it is anticipated the field will be defined in the northeast direction. Approximately 3700 acres is estimated to be proved at present, compared with heretofore estimates that it would be over 10,000 acres.

With the above possible failure and the south portion of the field nearly defined and the western wells running low, it leaves the northwestern and the easter portion open for further exploratory drilling.

A. G. Blanke 1 topped the Discorbis at 6260 feet, Heterostegina at 6620 and the Marginulina at 6935 feet.

Gulf Production Company's Knowles 1, northeast offset to R. A. Mason & Glenn H. McCarthy's White 1, was drilling ahead below 8013 feet without encountering any showings of oil. It has not been determined just how far the well will be drilled but it is in search of a new producing sand for the field. The well is located on the down throw side of a fault.

Sun Oil Company's White 2, west offset to White 1, was completed during the past week extending the north Anahuac field one location to the west. The well is bottomed in oil sand at 7085 feet and seven-inch casing was set at 7007 feet. The well came in for 565 barrels per day through a quarter-inch choke with 590 pounds pressure on the tubing and 880 pounds on the casing. The well topped the Discorbis at 5860 feet and the Heterostegina at 6155 feet. The Marginulina formation was encountered at 6451 feet.

Humble Oil & Refining Company and R. A. Mason & Glenn H. McCarthy's R. M. White 2, north offset to Sun Oil Company's White 2, was preparing to drill plugs at the end of the week after setting seven-inch casing at 7025 feet. The bottom of the hole is at 7085 feet. This well topped the Discorbis at 5848 feet and the Heterostegina at 6159 feet.

In Jefferson County, Sun Oil Company's Hebert Broussard 1, La Belle prospect, B. Blackmon Survey, was shut down at 8210 feet after setting 9⅝-inch casing at that depth. The operators are curing titles before the plugs will be drilled. A production test should be made the coming week. Oil sand was found from 8237 to 8265 feet.

It is reported Magnolia Petroleum Company took a 9000-acre geophysical block east of the above possible discovery well.

FOUR OIL WELLS

Lake Charles.—There were seven completions in the Louisiana Gulf Coast the past week, of which four resulted in producing oil wells with a daily output of 1749 barrels. The remaining three completions were failures.

New Bosco Sands

TWO DEEPER HORIZONS ARE FOUND TO BE PRODUCTIVE

Lake Charles.—Two new producing sands were found in the Bosco field, Acadia and St. Landry parishes, during the past week when Superior Oil Producing Company's Lester Johnson 1 was completed in the lower Marginulina-Frio sands at 9118 feet, and Prejean 1 was preparing to be washed in from the Marginulina formation at 9034 feet.

Lester Johnson 1, Section 34-8s-3e, 2000 feet southeast of the discovery well, is a workover well and was drilled from 8650 feet to 9118 feet, where it came in making 201 barrels in 24 hours through a nine sixty fourths-inch choke with a tubing pressure of 1375 pounds. The oil is 37.8 gravity.

Casing was perforated from 9096 to 9106 feet and 90 sacks of cement were pumped into the hole. The hole was cleaned at 9030 feet and perforations made from 9018 to 9028 feet. Two and half inch tubing was run to 8568 feet on top of 549 feet of liner.

The well originally was completed the latter part of 1934 at 8650 feet in the Marginulina sand for 18 barrels per hour showing a large amount of water. The well also showed 6,000,000 cubic feet of gas. Tubing pressure was 2600 pounds; casing pressure 2500 pounds. Seven-inch casing was set at 8627 feet.

Prejean 1, Section 34-8s-3e, 1500 feet south of Lester Johnson 1, was drilled to 9034 feet after being worked over. It had sands showing oil from 9019 to 9024 feet, and shale from 9024 to 9034 feet. Casing was perforated from 9004 to 9024 feet after running 538 feet of 4¾-inch liner to the bottom of the hole. Eighty sacks of cement were pumped in through the 20 feet of perforations. At the end of the week the hole had been cleaned to 9004 feet and 2½-inch tubing was being run to the sands. A production test will be made over the week-end. This well will

be producing from the Marginulina formation.

Lester Johnson 1 is producing from the Lower Marginulina-Frio formation the same formation that has proved productive in the Tepetate field in Acadia Parish. The Bosco well is the second well along the Louisiana Gulf Coast to produce from that formation. It was reported some time ago that probably the Bosco wells would be deepened to this new sand.

Prejean 1 will probably produce from the Marginulina sand and is only approximately 100 feet higher than Lester Johnson 1. However, Marginulina fossils were found in the former well and were not in Lester Johnson 1. The Lower Marginulina-Frio formation is picked up after the Marginulina fossils disappear and the first sand after the Marginulina sand is supposed to be the Frio sand. Lester Johnson 1 is producing from the lower section of the Marginulina formation, and the top of the Frio formation.

There are now six producing sands in the Bosco field; the Discorbis which is referred to as the Hernandez sand, named after the discovery well; the Heterostegina sand, called the Mire sand, so named after the first eastern producer; the first Marginulina sand found around 8425 feet; the second Marginulina sand, often called the Richard sand because it was the first southeastern producer; the third Marginulina sand which has just been discovered by Prejean 1, and the Lower Marginulina-Frio sand discovered by Johnson 1.

The sands are found around 7830 feet, 8060 feet, 8425 feet, from 8600 to 8687 feet, and the two new deep sands at 9034 and 9118 feet.

The above two new producers are the first wells to be completed in the Bosco field for some time. The field was developed at a rapid pace and it is reported that a large number of the wells started making water. After the water encroachment the operators ceased all drilling and started working several of the wells over.

Superior Oil Producing Company has made location for a new well in the field. W. V. Larcade 11 is located 3119 feet east and 100 feet south of the northwest corner of Section 35-8s-3e.

To the north of Churchpoint and northeast of the Bosco field, Superior Oil Producing Company is reported to be going to drill Bayou Mallet prospect which centers around Section 50-7s-1 and 2e. Superior Oil Producing Company has been working in the area with geophysical instruments this year. Shell Petroleum Corporation and Adams Louisiana Corporation have also worked in the general area with geophysical instruments.

Around Sunset prospect, or what might be called the Bosco-Bristol area, Superior Oil Producing Company is actively engaged in geophysical work, and it is reported several other major oil companies are leasing. It is reported that a well will be drilled on this prospect within a few months.

Roanoke Field

In the Roanoke field, Jefferson Davis Parish, Shell Petroleum Corporation's Jarnigan 1, the deepest well to be drilled on the Gulf Coast was abandoned after failing on a fishing job. The well was drilled to 10,750 feet before it was finished as a dry hole, and had several showings of oil and gas in sands but not enough for commercial quantities.

Humble Oil & Refining Company's Taylor 2, south offset to Shell Petroleum Corporation's Kratzer 3, was completed to extend the field one location south. The well was drilled to 7805 feet. Seven-inch casing was set at 7789 feet and the well came in for 720 barrels per day through a quarter-inch choke with 1150 pounds on the tubing and 1350 pounds on the casing.

17 COMPLETONS

Houston.—There were 17 completions in the Texas Gulf Coast during the past week. Thirteen of the completions were producing wells with an initial production of 4100 barrels per day. There was one gas well completed in the Pledger field, Brazoria County, by Humble Oil & Refining Company. The remaining three completions were failures.

Abandon Deep Test

BATON ROUGE WILDCAT IS STOPPED AT 10,360 FEET

Lake Charles.—Superior Oil Producing Company's Duplantier Community 1, Section 65-7s-1e, University block, south of Baton Rouge, East Baton Rouge Parish, was preparing to be plugged back and perforated from 6492 to 6532 feet.

The hole was drilled to 10,360 feet, being the fourth 10,000-foot test in the Louisiana Gulf Coast within two years, where the drill stem was twisted off. An electric logging device was run to the bottom of the hole and all sands below 8600 feet are supposed to have showed nothing but salt water. In the Marginulina formation from 7994 to 8503 feet a few streaks of sand were found which showed oil.

The well will be perforated from 6492 to 6532 feet where the electrical logging device showed 12 ohms resistance and a very good porosity. The well is regarded as a good bet to become the discovery well for a new field. The operators were preparing to test the well late October 11, 1935. The Heterostegina was reported topped at 7686 feet and the Marginulina at 7994 feet.

It is reported Superior Oil Producing Company has a geophysical crew back into the area and is rechecking with reflection seismograph. It is also reported that the operators will start a well on the University properties.

It is reported C. B. Bunte is going to drill a well in East Feliciana Parish in December 1935.

The tentative location has been made on the J. S. Andrews 330-acre tract in Section 69-2s-3e. He is now reported selling spreads to several of the major oil companies.

Willow Lake

Magnolia Petroleum Company's Broussard 1, Section 13-9s-9w, Willow Lake area, was drilling ahead at the end of the week below 8700 feet in shale.

The wildcat had another showing of oil from 8498 to 8502 feet. This showing is the last oil show since 8146 to 8149 feet. The well has had several good indications of oil and on an electrical logging device from 7830 to 7843 feet the well showed two ohms. The well will be drilled on down below 9000 feet and will be perforated up the hole and production tests will be made.

The Texas Company's Henzan 1-B, Section 54-12s-7e, New Iberia field, Iberia Parish, was resetting casing at the end of the week. The operators ran casing to the new producing sand at 5385 feet but it is understood that a bad cementing job caused the resetting of the casing.

A production test probably will be made October 14, 1935. If the well proves a commercial producer it will open a new deep sand for the field. The operators had sand showing oil from 5385 to 5401 feet. On a 12-minute drill stem test through a quarter inch choke on top and bottom the well showed 1464 feet of pipe line oil and 100 feet of sand with no water.

In Iberville and Assumption Parishes, Shell Petroleum Corporation is reported to have closed a deal for the Kyle Lumber Company's 17,000 acres. The deal was for exploration leases for one year with five dollars per acre selection.

Tepetate Field

In the Tepetate field, Acadia Parish, Continental Oil Company's Klump 1, half mile southwest of the discovery well, was preparing to drill ahead at 8445 feet at the end of the week after encountering a gas sand at 8344 feet. The well is running approximately 40 to 50 feet lower than the discovery

SOUTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BOSCO—		
Superior, Lester Johnson 1, (wo)..	201	9118
ENGLISH BAYOU—		
Fohs Oil Co., Airhart 1.....	540	7084
GILLIS—		
Texas Co., Nickerson Fee 6.....	288	6710
HACKBERRY—		
Texas Co., State Hackberry B-16..	*	lcn.
ROANOKE—		
Humble, Taylor 2	720	7805
Shell, Jarnigan 1.....	*	10,750
JEFFERSON DAVIS PARISH—		
H. M. Naylor, Boudreaux-Johnson 1, sec 39-10s-3w	*	3007

*Failures; †Junked; ¶Million cu. ft. gas.

well. The producing horizon for the discovery well was 8313 feet.

The well topped the Discorbis at 6757 feet, Eponidez at 6933 feet and the Heterostegina at 7150 feet.

The same operator's Homeseeker Development Company 1, Section 29-7s-2w, 4250 feet west and a little south of the discovery well, is coring sandy shale at 8309 feet with showings of gas. The well should be down to the producing sand the coming week. It topped Discorbis at 6730 feet and Eponidez at 6925 feet. Federal Land Bank 1, 2500 feet north of the discovery well, was drilling in shale at 7553 feet.

English Bayou

Another producer was added to the southwest flank of the English Bayou field, Calcasieu Parish during the past week when Fohs Oil Company's Airhart 1, quarter mile west of Wasey 1, came in at the rate of 540 barrels per day through a quarter inch choke from perforated casing at 7040 to 7084 feet. The tubing pressure showed 850 pounds and the casing pressure was 1000 pounds.

The Texas Company added a new producer to the Gillis field, when Nickerson Fee 6, came in for 588 barrels daily from 6710 feet.

LINCOLN WILDCAT

Set casing to test 22-foot gas sand

Shreveport.—Coming close upon the heels of an oil showing in the same horizon in a wildcat test in Ouachita Parish, Lide and Greer late last week were arranging to set seven-inch casing at 5270 feet in Fowler 1, Section 10-17n-4w, a wildcat in Lincoln Parish, after reportedly coring 22 feet of gas sand at 5280 feet to 5303 feet. The test with elevation of 262 feet logged top of the first anhydrite at 4589 feet, top of the main anhydrite body at 4629 feet, base of the main Anhydrite body at 5080 feet, and logged the gas sand at 5280 to 5303 feet.

An electrical test was made and operators Friday were preparing to set casing.

This test is located in North Louisiana basin between the Monroe and Sabine uplifts.

The Ouachita Parish test that had an oil show in the Glen Rose horizon is American Liberty Oil Company's Colson 1, NW NW 25-17n-10, with elevation of 160 feet. It topped lower Cretaceous at 3944 feet, topped first Anhydrite at 4464 feet, topped the main Anhydrite body at 4662 feet and reached base of the main Anhydrite at 4945 feet and logged the last stringer of Anhydrite at 5006 to 5041 feet. It cored tight oil sand at 5103 to 5115 feet and cored a gas and oil sand at 5204 to 5243 feet. It cored Oolitic lime with streaks of saturated porous lime and thin black shale streaks at 5330 feet and cored a gas and oil sand from 5330 to 5366 feet, where it went into black shale and lime to 5381 feet, bottom of hole. Five and one half-inch casing was cemented at 5200 feet using 350 sacks of cement.

Another Rodessa Well

FLOW OF 120 BARRELS HOUR IN EIGHTH OIL PRODUCER

NORTH LOUISIANA

WEEKLY STAFF REPORT

Shreveport.—R. W. Norton's Caddo Levee Board 1, SE NE 21-23n-16w, Rodessa field, completed Thursday night at 6000 feet in oolitic lime, flowing 120 barrels of oil per hour through half-inch choke on tubing. Casing pressure was 575 pounds, tubing pressure 450 pounds. No salt water appeared.

The well was completed without swabbing but after being washed for seven hours and pumping in gas. Mud clogging the hole was blamed for well refusing to flow and failing to develop pressure at first.

This test is three-eighths of a mile north of the discovery oil well, United Gas Public Service Company's I. L. Young 1, SE SE 21-23n-16w. Total depth is 6000 feet and saturated oolitic lime of Glen Rose age was topped at 5944 feet. Five-and-three-quarter-inch casing was cemented at 5922 feet. Top of anhydrite was 5017 feet, six feet lower than the same contact in the discovery oil well. Elevation of Norton's test is 208.7 feet.

Earlier in the week, United Gas Public Service Company completed Rodessa Oil & Land Company 1, SE NE 15-23n-16w, at 6014 feet, flowing 70 barrels of fluid per hour through half-inch choke on casing, no tubing being used. The well was completed at 7:30 p. m. and killed the next morning at 9 a. m. and will be deepened. The shake-out during this time was 10 percent and the well apparently never completely cleaned itself. Gravity was 40.5 at 90 degrees with flow line temperature of 100 degrees.

Louisiana Conservation Commission plans to gauge all of the oil wells at Rhodessa—six are listed as oil wells—on a half-inch positive choke on tubing and casing and base the well's potential production on their findings. To date only three of the wells of the field have been so gauged. These are: United Gas Public Service Company's I. L. Young 1, the discovery oil well of the field, completed last July; Haynes Production Company's Lawton 1, Section 14-23n-16w, the second completion in the field; and O'Brien Brothers' Rodessa Oil & Land Company 1, Section 14-23n-16w

Well Gauges

On the test given by the conservation department, Rodessa Oil & Land Company 1 showed 93.5 barrels per hour; Lawton 1.93 barrels per hour; and Young 1.56 barrels per hour. The comparatively small amount of production shown on the latter well's test is attributed to the fact that the gas in this well not having been cased off as was done in the two other wells.

United Gas Public Service Company in addition to the oil being produced at Young 1 is also running approximately 15 million cubic feet of gas daily to its absorption plant at Myrtis. In fact, more gas is being pulled from this well than from any of the 30 gas wells of the field.

Total pipe line runs of oil from the Rodessa field from July 29, the date of the first oil runs from Young 1, to October 1, is 287,500 barrels.

The wells are all producing more oil than their pipe line runs per day average. Under the October proration allowable order each well is limited to an average of 1,000 barrels of oil per day for the month.

Following are the daily production figures and pipe line runs for five of the first six wells of the field as taken October 4:

United Gas Public Service Company's Young 1, production 945 barrels, pipe line runs 854 barrels, gravity 47, sediment one tenth of one percent, casing pressure 2360 pounds, tubing pressure, 950 pounds, flowing through 5/8-inch choke on tubing.

United Gas Public Service Company's Bremer 1, Section 22-23n-16w, production, 1,570 barrels, no runs; tubing pressure, 720 pounds, casing pressure, 1120 pounds, producing on half-inch choke on tubing; gravity, 45.

Haynes Production Company's Lawton 1, Section 14-23n-16w, production 1060 barrels; runs, 896 barrels; temperature, 94; gravity, 45; one tenth of one percent water and sediment, producing on 7/64-inch choke, casing pressure 1675 pounds, tubing pressure, 725 pounds.

O'Brien Brothers' Rodessa Oil & Land Company 1, Section 14-23n-16w, production, 1008 barrels, runs 943 barrels; gravity, 44; producing through 19/64-inch choke on tubing, three percent water and basic sediment; tubing pressure, 800 pounds, casing pressure, 1275 pounds.

On October 7, Haynes Production Company's Otwell 1, SE SE 15-23n-16w, on a 12/64-inch choke made 75 barrels of oil per hour of which 3.1 per cent was water and basic sediment. This later on October 9 had been reduced to five tenths of one percent. This gauge was taken after the well had plugged back for the second time

to 6000 feet after first plugging back to 6023 feet from 6081 feet where it had shown salt water.

Pelican Oil & Gasoline Company's Sexton 1, NE SE 14-23n-16w, deepened to 6068 feet has been killed again with plans for deepening. This well flowed oil with 18 to 20 million cubic feet of gas daily.

On October 8 the following gauges were taken:

United Gas Public Service Company's Young 1, produced 725 barrels of oil in 24 hours through quarter-inch choke, with runs of 768 barrels, gravity being 47.6 at 88 degrees, flow line temperature being 90 degrees. Casing pressure was 2380 pounds and tubing pressure 1850 pounds.

United Gas Public Service Company's Bremer 1 produced 500 barrels in 24 hours through 12/64-inch choke with 1700 pounds casing pressure and 1000 pounds tubing pressure, the gravity was 45.1 at 86 degrees; runs were 228 barrels. Basic sediment was .1 of one percent and no water.

Haynes Production Company's Lawton 1 showed production of 1005 barrels, runs of 893 barrels of 44.5 gravity at 76 degrees with flow line temperature 88 degrees; casing pressure, 1250 pounds and tubing pressure, 750 pounds through 7/64-inch choke.

Haynes Production Company's Otwell produced 1050 barrels, through 21/64-inch choke with casing pressure 800 pounds and no gauge on tubing. Runs were 878 barrels; with temperature of 82 degrees the gravity was 44.5; flow line temperature was 76 degrees.

O'Brien Brothers' Rodessa Oil & Land Company 1, produced 1030 barrels, runs totaling 951 barrels. Gravity was 43.5 at 72 degrees and flow line temperature was 90 degrees. The well was producing through 22/64-inch choke on tubing with casing pressure of 1250 pounds and tubing pressure of 800 pounds.

United Gas Public Service Company's Thomas 1, through 7/16-inch choke, produced 1010 barrels of fluid in 24 hours with gravity 45.5 at 94 degrees. Runs were 859 barrels with temperature of flow line 80 degrees. Casing pressure was 2200 pounds and tubing pressure, 1650 pounds. The salt water content was placed at 15 percent and approximately 50 percent of the oil was cut.

Although in all tests except Thomas 1 the salt water content is showing a decline from previous weeks, the origin of the salt water in the eastern part of the field is still a matter of theory, some holding to the theory that it comes from a lens and others that it is of bottom hole origin.

Outpost Drilling

A somewhat definite picture of the extent of the Rodessa field will be given as the results obtained in three outpost tests now drilling around 4000 feet and deeper. Three fourths of a mile north of production Grady Vaughan's Comegys 1, SE SE 10-23n-16w, last week was drilling at 4360 feet. One mile west of the discovery well, R. W. Norton's Foscue 1, NE SE 20-23n-16w, was drilling lime and shale at 3984 feet; and the same operator's Tyson 1, NW NW 13-23n-16w, three fourths of a mile northeast of the discovery oil well, is drilling shale with streaks of lime at 3910 feet.

Rodessa Drilling Report

Arkansas-Louisiana Gas Co.'s Rodessa O&L Co. 3, se se 22-23n-16w, dr 4984 ft lime & shale. Rodessa O&L Co. 4, nw ne 23-23n-16w, rur.

Bartex Drlg. Co.'s Wilbanks 1, ne se 7-23n-15w, mim.

Eastern Texas Prod. Co. & D. C. Richardson's Sch. Bd. 1, swc blk 25, 23-23n-16w, coring lime & shale 5850 ft.

Danciger O&R Co.'s Willis 1, lot 5, blk 7, 23-23n-16w, rur.

Haynes Prod. Co.'s W. B. Lawton 2, se nw sw 14-23n-16w, base massive anhydrite 5568 ft, running 7-in csg at 5832 ft td 5850 ft. W. B. Lawton 3, nw se 14-23n-16w, rur. H. Otwell 2, sw sw 14-23n-16w, dr 902 ft sand & shale. Sexton 1, cent 14-23n-16w, dr lime & shale 5635 ft. Sexton 2, 14-23n-16w, dk.

W. M. Layton's Tyson 1, se nw 22-23n-16w, rur.

Lion O&R Co.'s J. M. Wynn 1, ne sw 9-23n-15w, rur.

Monahan Oil Co.'s Comegys 1, 10-23n-16w, rur. Comegys 2, 10-23n-16w, lcn.

McAlester Fuel Co.'s Noah Tyson Hrs 1, se nw 22-23n-16w, rur.

M. H. Marrs et al's Hunter 1, se nw sw 13-23n-16w, rur.

R. W. Norton's Caddo Levee Bd. 1, se ne 21-23n-16w, top anhydrite 5017 ft cemtd 5¾-in csg 5922 ft top saturated lime 5944 ft td 6000 ft drilled in & testing. Tyson 1, nw nw 13-23n-16w dr shale strks lime 3910 ft. Foscue 1, ne se 20-23n-16w, dr lime & shale 3984 ft. Caddo Levee Bd. A-2, nw se 21-23n-16w, mim.

United Gas Pub. Serv. Co.'s Rodessa O&L Co. 2, ne ne 22-23n-16w, 5¾-in csg 5313 ft td 5330 ft. G. Gibson Est. 1, se sw se 15-23n-16w, cemtd 5¾-in csg 5963 ft td 6004 ft arr drill in & test.

United Prod. Co.'s Thurmond Unit 1, nec Jno. Coleman sur (Cass County, Texas), mim.

Grady Vaughan's Comegys 1, se se 10-23n-16w, dr 4360 ft; Derryberry 1, sw ne nw 14-23n-16w, dr 3440 ft.

Geophysical Work

A great deal of geophysical work continues in Cass County, Texas, just west of Rodessa. One geophysical crew, that of the The Texas Company, is working in Marion County, doing seismograph work around the Charles Grayson Survey.

Phillips Petroleum Company has a seismograph crew in the southeastern part of Cass County near the Louisiana line. Shell Petroleum Corporation has completed a profile map extending to Lodi from the Louisiana line near the John Coleman Survey. United Gas Public Service Company has a shooting crew working in the vicinity of the Robert Trammell Survey.

Superior Oil Company of California is among the latest companies to take acreage along the southwestern part of the Rodessa fault trend. This company paid $150 per acre for 168 acres seven miles southwest of the Rodessa discovery oil well, 148 acres being in the Robert Trammell Survey and 20 acres in the William Crowder Survey.

Leasing as a result of the Rodessa oil development still continues in La Fayette County, Arkansas, where Gulf Refining Company recently took 360 acres and individuals a total of 1850 acres in townships 16, 18 and 19, range 23, in townships 17 and 19, range 24 and in township 15, range 23. Gulf Production Company's purchase was in Section 9-20-26. In Columbia County, Standard Oil Company of Louisiana, which recently took a 4500-acre block in township 18 south, range 22 west, is having seismograph work done thereon.

Ouachita Parish

American Liberty Oil Company of Dallas, Texas, last week was setting 6⅝-inch casing in Golson 1, NW NW 25-17n-1e, Ouachita Parish, in the North Louisiana Basin and near the southwest flank of the Monroe Uplift.

Casing was set around 5200 feet after two tests were made with an electrical testing device. Total depth is 5347 feet in sand and shale. Red beds were topped in this well at 3575 feet and the upper Glen Rose, at 3942 feet. Bottom of the hole is below the anhydrite in the Glen Rose.

This test is on a block of 20,000 acres assembled in Ouachita and Jackson Parishes after extensive geological and geophysical work.

In the same general area, George T. Shaw of Shreveport has assembled a 50,000-acre block located in townships 17 and 18 north, ranges 1 and 2 west and 1 east, located in parts of Lincoln, Jackson and Ouachita Parishes, and plans two immediate 3500-foot tests, before drilling for the Glen Rose. Tentative locations have been made for the two shallow tests.

In Lincoln Parish on a reported geophysical "high", Lide & Greer's Fowler 1, NW SW SE 10-17n-4w, last week was coring hard lime of the Glen Rose

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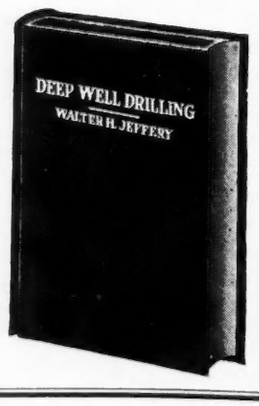

at 5285 feet, following a short delay due to a fishing job. This test topped Nacatosh at 2275 feet, logged Annona chalk from 2377 to 2650 feet, and logged anhydrite from 4635 to 5084 feet.

New Locations

Five new locations were announced last week in the Rodessa field. The new tests are: T. F. Birmingham's Gibson Pitts Fee 1, NE NW SW 10-23n-16w; Bartex Drilling Company's (Phillips Petroleum Company) Wilbanks 1, NE SE 7-23n-15w; R. W. Norton's Caddo Levee Board A-2, NW SE 21-23n-16w; and United Gas Public Service Company's Ardis and Company 1, 660 feet north and 1980 feet west SEc 14-23n-16w; and Poole 1, NE NE 21-23n-16w.

A wildcat test on a block of 20,000 acres was made last week by H. M. Jones in Tensas Parish, northeast Louisiana. The new test is Hankins 1, Section 30-12n-10e. Part of the block lies in Catahoula Parish.

Natchitoches Parish

A strong showing of gas in sand and sandy shale at total depth of 4303 feet was reported last week in Roy Raines and associates' Raines 1, SW SW 28-9n-10w, a wildcat in Natchitoches Parish. Operators hung drill stem just below the top of the hole while arranging for a test. The formation is identified as Washita, which produces oil in the Pleasant Hill field, Sabine Parish, at around 3200-3300 feet.

LOUISIANA PERMITS

Shreveport — Twenty-eight drilling permits were authorized last week by the Louisiana Conservation Commission. Seventeen were for North Louisiana divided among the following parishes: Caddo, nine; Claiborne, one; DeSoto, one; Morehouse, one; Ouachita, two; Sabine, one; and Union, two.

Those in south Louisiana were divided among the following parishes: Calcasieu, one; Cameron, three, Iberia, two; Jefferson Davis, one; Plaquemines, one; St. Mary, one; Terrebonne, two.

NORTH LOUISIANA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BOSSIER PARISH—		
Douglas Spivey, Rodessa Dev. Assn. 1, 16-18n-11w	*	815
R. L. Skidmore, Davis 1, 12-18n-13w	*	2592
CADDO PARISH—		
The Leonard Co., Crystal Fee 46, 13-21n-16w	5	1042
M. A. Dickson 3, 36-21n-15w	12	2230
DESOTO PARISH—		
S. J. Barber, Horton 1, 4-11n-11w	*	2731
OUACHITA PARISH (Monroe)—		
Inabnet & Pipes, D'Arbonne 3, 28-19n-3e	¶½	2169
Douglas 1, 31-19n-4e	¶2	2169
SABINE PARISH (Converse)—		
Hill Meyers et al, Magness 1, 30-9n-13w	40	1786

*Failures; †Junked; ¶Million cu. ft. gas.

WILDCAT SHOWS OIL

Dallas County test logs Nacatosh sand

El Dorado, Ark.—A show of oil in the top of the Nacatosh sand logged at 1244 feet was reported by McCall & Kelley in a wildcat test in Dallas County, Arkansas, last week. The test is R. Owen 1, NW NW 26-10-16. After logging top of the Nacatosh operators took a core which is said to have shown considerable oil. Nothing but surface casing has been set. This test had previously reported an oil show at 484-89 feet; elevation is 360 feet.

The test is about 20 miles north of the town of Camden.

ARKANSAS PERMITS

El Dorado, Ark.—Two drilling permits were authorized last week by the Arkansas Board of Conservation as follows: Monroe County—J. R. Lockhart, Holly Grove, Arkansas, R. Abramson 1, 969 feet west and 309 feet north SEc SE SE 19-1-1; Ouachita County—Benedum Trees Oil Company, Pittsburgh, Pennsylvania, H. L. Brigham 1, 564 feet south and 300 feet west NEc NE SW 29-14-19.

ASSOCIATION MEETING

Shreveport.—The Louisiana-Arkansas division, Mid-Continent Oil & Gas Association will hold its annual membership meeting and the annual meeting of the executive commitee Monday, October 21, at 10 a.m. in the division's offices, 812 Slattery Building, Shreveport, according to announcement last week by A. R. Campbell, secretary. Officers for the ensuing year will be elected. J. R. Crawford of Shreveport is president, having served in this capacity for two years.

ARKANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MILLER COUNTY—		
Two Forty Oil Corp., E. L. Beck 2, 35-15-26	*	2945
UNION COUNTY (Rainbow City)—		
Ohio Oil Co., R. Furlong 2, 12-17-14	¶4	3258
UNION COUNTY (Urbana)—		
Marine Oil Co., W. B. Thompson A-8, 3-18-13	*	3592

*Failures; †Junked; ¶Million cu. ft. gas.

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Hobbs Dry Hole

CHANCES DIMMED FOR OIL ON NORTHWEST TREND

WEEKLY STAFF REPORT

Hobbs, New Mexico—Continuation of production in the Hobbs field along a northwest trend appeared remote the past week when Tide Water Oil Company's State 1, SEc SE NE 14-18s-37e, or about one half mile in advance of production, failed to show oil or gas on series of drill stem tests made near the water level. Five feet of oil saturated lime topped at 4168 feet, or 479 feet sub sea, did not produce when formation tester was used at 4198 feet and 4215 feet. The well was deepened to 4255 feet, or minus 566 feet, without recording additional saturation. Representative of the company indicated that the formation tests were not decisive, and that casing may be cemented near the 4100-foot level to give the well a swabbing test then, treat the lime horizon with acid.

Row of nine wells, occupying a two-mile front, form the north border of production for the Hobbs field. Except for a dry hole situated one-half mile north of the center of this line of production and another about one mile to the north and slightly east the north and northwest production trend has not been defined. Shell Petroleum Corporation's Lizzie Rice 2, C SW SE 13-18s-37e, most recent addition to the row of outpost wells, earned a potential rating of 6850 barrels oil and 8,000,000 cubic feet of gas after three heavy injections of acid solution, with a total depth of 4263 feet, or 585 feet sub sea. The well logged first saturation at 4015 feet, and showed from 30 to 50 percent water before installing packer on tubing at 4166 feet. The water intruded from the upper section of the lime pay.

Monument Drilling

Ten rigs are operating in the Monument field, which has 13 flowing wells that are prorated to 126 barrels daily each. Next probable extension of the productive limits will be in a southeast direction, where two outposts are drilling in the lime section and recording favorable structural positions. Jeffers Oil Company's Britt-Conoco 1, C SE NW 7-20s-37e, situated 1¼ miles southeast of nearest production, was drilling below 2915 feet after overcoming series of mishaps encountered in drilling with machine to 2622 feet, where 8⅝-inch pipe was cemented. Bert Fields, Dallas contractor, moved in rotary rig at the latter depth to complete the test. Barnsdall Oil Company's Cooper 1, NE NE 12-20s-36e, an intermediate outpost, had progressed to 2550 feet.

The only new location assigned the Monument field the past week was Skelly Oil Company's State-Monument 1, C SE SE 13-19s-36e, a west offset to production in the northeast extension. Wells in this section of the field afford sufficient natural flow of oil and gas to defer injection of acid solution into the porous limestone pay, as borne out by the experience of Gypsy Oil Company and Phillips Petroleum Company in completing their respective wells on the B. V. Culp land recently. All other producers in the field have been treated with acid, with a few registering heavy yields immediately thereafter in comparison to a non-commercial producer without artificial stimulation.

North Jal Area

Phillips Petroleum Company and Pure Oil Company's Woolworth 1, Group 3, C SW SW 6-25s-37e, situated about one-half mile northeast of nearest production in the North Jal area, failed to boost its fluid yield in deepening to 3522 feet, or 335 feet sub sea. Potential gauge through two-inch choke on casing showed 62 barrels fluid, including 33 percent water. Tubing is to be installed to try and complete for a small producer. Top of brown lime was logged at 2690 feet, or 497 feet above sea level. The partnership's Woolworth 1, Group 2, C NE NW 33-24s-37e, situated 3½ miles east of the Cooper field, has been delayed by a fishing job at 3483 feet. Top of brown lime was called at 2772 feet, or plus 493 feet. It is seeking production in sandy-lime section about 300 feet below sea level, as two small wildcat producers have been completed this year along the same trend.

Cooper Field

Skelly Oil Company's J. L. Coates 320-acre lease, occupying the north end of production as now determined in the Cooper field, is proving to be one of the most productive tracts in the area. This company's Coates 2, C SE SW 3-24s-36e, cored saturated lime at 3520-3550 feet, or 152 feet sub sea, and is credited with having gauged 138 barrels of pipe line oil on 15-minute test through three-inch tubing, with gas production estimated at 15,000,000 cubic feet daily. The lime pay was treated with 1000 gallons acid solution, which was removed after six hours, after lowering tubing to bottom and installing packer at 3530 feet. Preliminary estimate on the oil flow rated the well at 100 barrels hourly, with a substantial reduction in the gas-oil ratio.

Simms Oil Company, subsidiary of Tide Water Oil Company, encountered a tight, or barren, lime section in drilling its J. L. Coates 1, C SW NE 10-24s-36e, through the producing zone to 3700 feet. It was plugged back to 3666 feet, or 284 feet sub sea, after testing hole full of water, then treated with 2000 gallons followed by 5000 gallons of acid colution. Reports indicated that the well swabs 20 barrels daily, with no appreciable benefit from acid treatment. Stanolind Oil & Gas Company's A. E. Meyer 1-B, C NW NE 26-24s-36e, situated near the center of the east edge of the Cooper field and offset by production in all directions but to the east, found irregular conditions in drilling to 3530 feet, or 200 feet sub sea. Four day swabbing test averaged 20 per sent oil and the balance was sulphur water. Seven-inch casing was cemented at 3401 feet, cutting off all gas from the brown lime zone. The well has been plugged back to 3500 feet. Gypsy Oil Company's S. R. Cooper 2, C NW SE 23-24s-36e, or two locations to the north failed to respond to 60-quart shot of nitro in lime at 3480-3515 feet. Oil saturated lime was logged at 3525-27 feet in deepening 3530 feet, or 180 feet below sea level, and at the latter depth the well tested 450 barrels water and 40 barrels oil flowing. It has been deepened to 3532 feet, with an increase in gas reported at the latter depth. Tubing with packer will be landed to try and shut off the water from above.

Empire Gas & Fuel Company's State 1-D, C NW NE 32-21s-36e, situated about one-half mile south of production in the main section of the Eunice field but on a direct strike with wells in the southeast extension area, required acid treatment to convert into a flowing well. Formation tester used at 3872 feet brought negative results, but when the hole was deepened to 3890 feet, or 275 feet sub sea, sufficient porosity was logged to fill the hole 2300 feet with oil in 12 hours. The first injection of 2000 gallons of acid solution brought negative results, but when repeated the well flowed 30 barrels oil the first hour and 50 barrels the second hour, or an average of 15½ barrels hourly on 15-hour test. The well is to be treated with 4000 gallons of acid before going on the completion list.

Lea County Wildcats

Operations are underway on two of the recent wildcat locations authorized for eastern Lea County. N. G. Penrose and Rowan Drilling Company's Will Cary-Humble 1, C NW SW 22-22s-37e, situated several miles southeast of a wildcat failure drilled on the E. M. Elliott-Conoco permit, which was abandoned at 4077½ feet after passing through oil and gas shows near the 3800-foot level, was spudded the past week. Skelly Oil Company et al's B. F. Harrison 1, C NW SW 5-23s-37e, has cemented surface pipe and resumed drilling. In the western portion of the county, Culberson & Irwin's Sue Richardson 1, C SW SE 10-21s-32e, encountered sulphur water in lime at 3863 feet and was abandoned at 3872 feet. Top of lime was logged at 3355 feet, with an elevation of 3808 feet.

Good Cut Bank Well

LARGEST TOWNSITE WELL IS MAKING 125 BARRELS

ROCKY MOUNTAIN FIELDS WEEKLY STAFF REPORT

Cut Bank, Mont.—The first well of above average Cut Bank proportions was brought in this week within Cut Bank town limits. Hannah-Porter's State 2, NE NE 12-33n-6w, swabbed 130 barrels in the first 16 hours and is estimated as 125-barrel well on the pump. The well logged the producion sand at 2930-55 feet and went to 2970 feet. So far developments within town limits have resulted in small wells of around 25 barrels.

Consolidated Gas Company's Tribal 9, Lot 5, 34-35n-6w, made 65 barrels initial with total depth at 2905 feet. R. C. Tarrant's Hagland, Jr. 6, CSE NW 13-34n-6w, is a near completion testing after a shot with 100 quarts. The well had 200 feet of oil in the hole bottomed at 2845 feet before the shot.

Montana Power Gas Company spotted Rigney 1, CNW NE 2-35n-6w, a 40-acre location due south of its northern extension well Hall 1, CSW SE 35-36n-6w, which swabbed 300 barrels initial a week ago from 3050 feet and moved proved limits three miles north.

The Texas Company staked location for Mable Morrison 5, NW NE NW 22-35n-6w, an outside location a quarter mile west on the Blackfeet Reservation from production in northern main developed sector of the field. The test is rigging up rotary.

Big Horn County

Operations in the Garland field, Big Horn County, northern Wyoming, were increased this week with Kinney-Costal Oil Company moving in its rig to deepen Government 3, SW SW NE 24-56n-98w. This is an old well on a lease taken over from the former Producers & Refiners Corporation. Well will be deepened to the Madison from its old depth of 4234 feet.

Ohio Oil Company's P. G. Sessions 3, NWc 33-56n-97w, in the Garland field, is fishing for drill pipe 700 feet off bottom at 3345 feet.

Peter Evanoff's McAllister 1, NW NE SE 3-55n-97w, Garland, is drilling at 1916 feet. The Yale Oil Corporation's Allen 1, SE NW SE 33-56n-97w, is drilling at 3021 feet. Joan Oil Company's Howell 1, NEc NW NE 3-55n-97w, is drilling at 1305 feet.

On the Lamb anticline W. S. Gilbert's Government 1, SE SE Section 35-52n-93w, is shut down at 850 feet.

Ohio Oil Company's Byron-Union 3, SE NW 25-56n-97w, Byron field, is nearing completion, coring the Tensleep at 5706 feet and showing good saturation.

Hot Springs County

Hot Springs County, northern Wyoming, has a completion this week in the Hamilton Dome field. Argo Oil Company completed Rathvon-Government 1, NE SW NW 14-44n-98w, for 20 barrels daily pumping at 2894 feet.

In the Waugh Dome field, California Exploration Company's Government 2, NW SW SE 7-44n-96w, is drilling at 3812 feet.

Stanolind Oil and Gas Company's Ridgely 20, CSE SE 19-46n-98w, in the Grass Creek field, is rigged and ready to spud.

Ohio Oil Company's Mill Iron Cattle Company 72, NE SE SE 19-46n-98w, Grass Creek, is drilling at 1200 feet.

Western Wyoming

Drilling operations in southwestern Wyoming show a slight revival of activity with a well resuming operations in the Spring Valley field, Uinta County, and one in the LaBarge field, Lincoln County, Wyoming.

D. Connell's Government 5, SW NW NW 24-15n-118w, Spring Valley field, Uinta County, has resumed operations after being shut down since July, 1933. The well is now drilling at 1000 feet. W. D. Marshall's Government 1, NW SW SE 12-15n-118w, Spring Valley field, Uinta County, is drilling at 400 feet.

Intermountain Petroleum Company's Union Pacific 1, SW NW SW 29-14n-118w, Spring Valley, is underreaming 5 3/16-inch casing to 1537 feet on top of oil sand, preparatory to testing show of oil. Total depth is at 1540 feet.

Senrab Oil Company has resumed operations in its Government 3, N½ SE NW 10-26n-113w, in the LaBarge field, Lincoln County. The well has been shut down for the past six months and is now drilling at 1015 feet. In the same field Superior-Wyoming Oil Company's 2-B, Center Lot 3, Section 15-37n-4e, is shut down at 890 feet.

Fremont County

In the Sheep Creek field, Fremont County, Mid-American Oil Company's Government 3, NWc NE SW 14-28n-92w, is drilling at 1020 feet after cleaning up fishing job.

South Central Wyoming

In Carbon County on Big Medicine Bow Dome, Ohio Oil Company with The California Company after a three weeks shut down has resumed operations in its Union Pacific 1 Account 1, NE SW SW 24-21n-79w. It was shut down for water at 510 feet and is now drilling at 778 feet. The 11⅝-inch surface casing is set at 505 feet. Company's State 2, CNW NW 36-21n-79w, Big Medicine Bow Dome, is drilling near the Muddy sand at 5059 feet. The well had a small show of oil in Muddy member above the present depth.

Ohio Oil Company's Diamond Cattle Company 5, NWc SW NW 35-27n-88w, Carbon County, is cementing the perforations in oil liner at 2832 feet preparatory to drilling deeper. Well is a deepening operation from the Dakota to the Sundance in the Rock River field.

Niobrara County

Black Hills Refining Company has derrick up for two locations in the east end of the Lance Creek field, Niobrara County, and is waiting on rotary equipment. The new starts are: Wyrick 1, SW NE 28-36n-64w and Mills Estate 1, SE NW 27-36n-64w. Location for Wright 1, SE SW 22-36n-64w, has been temporarily abandoned.

Ohio Oil Company's Carrier Putnam 4, SW SW 33-36n-65w, Lance Creek field, has cleaned up fishing job and is waiting on cement to set around the 7-inch production string at 3033 feet. Three weeks ago the well showed for 60 barrels an hour thru the drill stem at 3942-96 feet. Total depth is at 4000 feet.

HIAWATHA WELL

Deepening results in 150 barrel producer

Denver, Colo.—Deepening of Mountain Fuel Supply Company's Georgia Kuykendahl, NE SE 23-12n-100w, Hiawatha field, Moffat County, northwestern Colorado, is resulting in a 150-barrel oil well. The well bailed 147 barrels in 24 hours after drilling plug with the 6⅝-inch production string set at 2248 feet, with total depth at 2280 feet.

Production is coming from the Florence Wilson sand member in the Wasatch series. Because of the lenticular condition of the sands in the Wasatch oil development at Hiawatha, which has been one of the major gas fields of the Rocky Mountain territory, will be spotted, according to geologists who have made a study of the structure.

The Kuykendahl well is located three-eights of a mile southeast of Florence Wilson 1 SW NE 22-12n-100w, discovery well at Hiawatha. The discovery well completed in October, 1926, for 45,000,000 cubic feet of gas daily. In 1932 the gas dropped to around 1,500,000 cubic feet of gas daily and the well began making a nominal amount of oil. At present the discovery well at Hiawatha is making 1,000,000 cubic feet of gas daily and 15 barrels of oil. Total depth in the Florence Wilson is 2220 feet.

Oil in the Georgia Kuykendahl 1 and the Florence Wilson 1 tests 36.9 degrees gravity on the Baume scale and is of a mixed base. The Hiawatha field has been the major gas supply for the Mountain Fuel Supply Company and affiliations' system to Salt Lake City, U., and intermediate towns

in southwestern Wyoming and northeastern Utah. The field is 65 miles south from railhead and possibilities of it becoming an important oil field are at present held slim.

Continental Oil Company's Rosa Hoye 3, NWc NE 34-9n-78w, South McCallum Dome, is shut down at 4896 feet installing blowout preventer preparatory to drilling through and passing up the troublesome carbon dioxide and oil sand in the Muddy horizon. With the hole heavily loaded with mud expansion and consequent freezing of the gas operators expect to penetrate through sand without mechanical difficulties. The discovery well Hoye 1 which opened up an estimated 45,000,000 cubic feet of carbon dioxide and 250 barrels of high gravity oil has never been fully completed and put on production because of the freezing nature of the gas. The well has behaved as a geyser. The gas on expanding freezes itself finally into a bottom hole plug, then builds up pressure until the heat sublimates the solid gas and the well blows open until the plug is again formed. Efforts of the company in cooperation with U. S. Geological survey to pump cement into crevice around the split production string have reduced the blow out cycle in Hoye 1 to about once every 48 hours as compared with a former cycle of once every eight hours.

MOUNTAIN STATES
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MONTANA		
GLACIER COUNTY (Cut Bank Field)—		
Montana Power Gas Co. Hall 1, csw se 35-36n-6w	250	3050
Reagan 1, 660 ft west of the center of 28-35n-5w	¶17½	2705
Texas Co., Mueller 1, sw sw 2-35n-6w	25	3030
COLORADO		
MOFFAT COUNTY (Iles Field)—		
Stanolind Oil & Gas Co. S-D Parkinson 5, nwc se 22-4n-92w	620	3330
WYOMING		
SUBLETTE COUNTY (LaBarge Field)—		
Texas Co. 7 K, sw se 34-27n-113w	50	758
SWEETWATER COUNTY (Lost Soldier Field)—		
Sinclair-Wyoming Oil Co. 15-A, ne sw 11-26n-90w	12	568

*Failures; †Junked; ¶Million cu. ft. gas.

Shallow Well at Edison

TWO FAILURES REPORTED IN SEMITROPIC GAS AREA

WEEKLY STAFF REPORT

Los Angeles. — The best producer brought in for some time in the Edison field, 10 miles southeast of Bakersfield, in Kern County, was completed by General Petroleum Corporation last week. Knapp 4, Section 24-30-29, is flowing 520 barrels per day of 19.9 gravity oil, cutting 0.7 percent, with pump being used as an agitator.

While this is not an exceptionally large well, as compared to some of the more prolific fields of the San Joaquin Valley area, bottom of the hole is only 1329 feet, and that it was necessary to set only one string of casing, 8⅝-inch at 1050 feet.

Two Semitropic Failures

Two more failures were marked up against the Semitropic Gas Feld, Kern County, last week. Standard Oil Company's Henry & Chapman 1, Section 9-27s-23e, was carried down to 4431 feet without encountering gas zones that showed any considerable volume. The hole has been plugged back to 3600 feet and is being redrilled at 3806 feet. The second test, Fullerton Oil Company's Barnsdall 32, Section 32-27s-23e, total depth 4028 feet, is being abandoned. A small amount of gas was present in zones at 2300 feet, 2900-3200 feet, and 4000 feet to bottom, but gas in commercial quantities could not be developed.

Ant Hill Wildcat

Standard Oil Company is grading location for a wildcat test to be drilled on its M. & T. lease, Section 3-29s-29e, two miles from the southeasterly limit of production in the Round Mountain field, Kern County, in what is known locally as the Ant Hill district.

The property on which the well will be drilled has been under lease for some time, although no prior attempt has been made to develop production. Numerous small fields have been discovered throughout this section of the San Joaquin Valley during the past five years and most geologists agree that the new venture has better than an average chance.

Belridge District

Another test of the McDonald Anticline, located in the Belridge district, Kern County, is scheduled to be drilled soon. R. E. Bering, prominent California operator, is about ready to spud Maylan 2, Section 12-28s-19e. This will be a shallow test, present objective being a zone expected at about 1200 feet.

This location is one mile west from where Continental Oil Company abandoned Maylan 1 about three months ago at 5304 feet, without encountering any formations worth testing. It is one mile northwest from where Continental Oil Company later drilled Layman 1 to 1783 feet and abandoned it three weeks ago. Layman 1 penetrated approximately 80 feet of fair oil sand from 1465 to 1556 feet but subsequent production tests failed to recover any appreciable amount of oil.

SANTA BARBARA
Plan carrying test to Sespe formation

Los Angeles.—Jordan & Mainey are endeavoring to obtain sufficient "dry hole" contributions to enable them to carry Hels 1 in the Santa Barbara Mesa field on down for a test of the Sespe formation. A total subscription of only $6000 will be needed and approximately half of that amount has been promised. Bottom of this well is at about 2050 feet, with 8⅝-inch casing cemented at 1975 feet. It was completed from the Vaqueros formation on January 3, 1935, for an initial production of 430 barrels per day, 18.0 gravity, cutting 2.0 percent.

Jordan & Mainey's Hels 1, is located on Lot 27, Fair Acres Tract of the Santa Barbara Mesa field, which lies just west of Santa Barbara. While this is a comparatively new field, most of the development work having been done in the latter part of 1934 and the

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early part of 1935, a recent survey reveals some interesting facts pertaining to edgewater encroachment.

A total of 89 wells have been drilled in the proven limits of the field. Of that total 29 have been abandoned. Of the remaining 60 producers, only six wells are still "dry" (showing a cut of 1.0 percent water, or less). During the first six months of 1935, the field showed a gross production of 1,219,925 barrels, of which 52.6 percent was oil and 47.4 percent was water. Many of the wells completed less than one year ago for an initial of over 1000 barrels per day now are making less than 100 barrels per day and showing a water cut ranging as high as 25.0 percent. Present production for the entire field is only 3575 barrels per day, from 60 wells, or an average of slightly less than 60 barrels per well. The best production was obtained in the north and east ends of the field and, even there, water cut averages eight to 15 percent, while in the south and west portions the water content ranges as high as 90 percent.

VENTURA COUNTY

Los Angeles.—Continental Oil Company has made location for Hobson 1, Section 15-3n-24w, Padre Canyon district, Ventura County. This location is just north of the San Miguelitos field, and between that field and the Rincon field. These two fields are located less than two miles apart, on the same northwest-southeast trend, and many geologists believe that a connection may exist between them.

Chanslor-Canfield-Midway Oil Company drilled Hobson 1, located about one fourth of a mile to the southwest, to 7002 feet without finding commercial production, and General Petroleum Corporation drilled a test on the Hobson property, a few hundred feet to the southeast, with similar results.

CALIFORNIA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
LONG BEACH—		
Nedal Oil Co., No. 3	180	5850
Sentinel Oil Co., No. 3	20	4300
Shell, Alamitos 42	160	4503
Western Dev. Corp., No. 1	20	4375
DOMINGUEZ—		
Shell, Reyes 67	1100	4525
Reyes 70	500	4450
SANTA FE SPRINGS—		
Union, Alexander 26	45	4458
VENICE—		
Royalty Service Corp., Del Rey 23-1	240	6565
EDISON—		
General, Knapp 4	520	1329
Leddy-Nichols 2	40	2841
MOUNTAIN VIEW—		
Barnsdall, Noble-Petrol 1-A	1200	6147
MOUNT POSO—		
Texas Co., Vedder 8	370	1824
VENTURA AVENUE—		
Associated, McGonigle 8	100	6625
SAN LUIS OBISPO COUNTY—		
Emerich Oil Corp., No. 1	*	2350
SANTA BARBARA COUNTY—		
Shell, Hollister 1	*	2977
SEMITROPIC—		
Standard, Goldman 1	*	5698
KERN COUNTY—		
Caliente Oil Co., No. 1	*	460

*Failures; †Junked; ¶Million cu. ft. gas.

NORTHERN CALIFORNIA

Los Angeles.—In the Sacramento Valley district of Northern California, there are now only two wells working and a third just recently suspended, due to mechanical difficulties.

The great American Petroleum Company's Howard 1, wildcat project located in Section 25-2-8, Clay Station district, Sacramento County, was drilled to 3041 feet when the 8⅝-inch drill pipe cemented at 2935 feet collapsed. In trying to clean out the hole and repair the casing, additional iron was lost in the hole and the well is now almost completely junked.

Northern Counties Petroleum Company's Ewers-Mooney 1, Section 25-24-3, now has nine-inch casing cemented at 4904 feet. Total depth is 5032 feet, bottomed in sandy shale, and most of the formations near bottom have shown considerable gas, with an occasional slight scum of dark oil. Operators are breaking down the five-inch drill pipe and making up four-inch, preparatory to deepening. This test has been carefully drilled and the hole is in good shape to carry down as far as the operators choose.

Buttes Oilfields' No. 3, two miles south from where No. 2 was drilled, in Section 11-15n-1e, Marysville, Buttes district, Sutter County, is reaming the hole down and preparing to set 10¾-inch casing at about 4750 feet. Bottom of the hole is at 5213 feet and the

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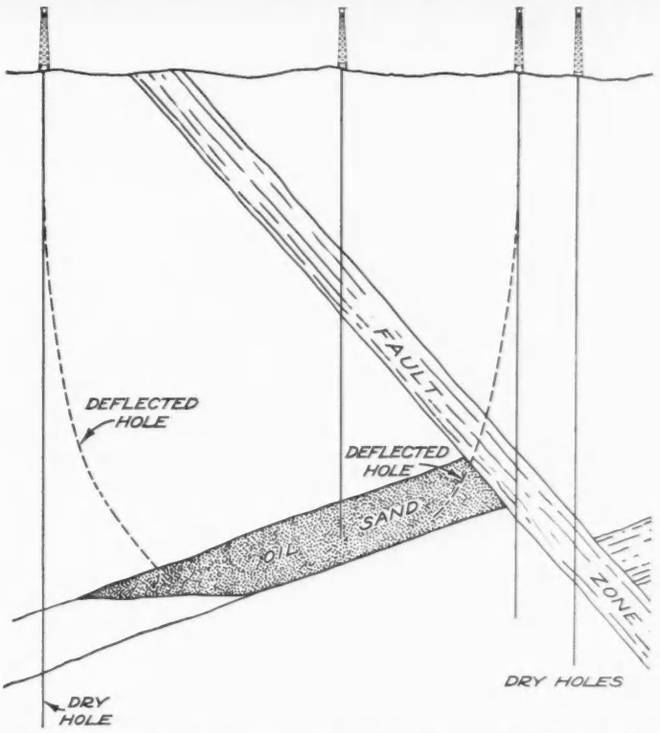

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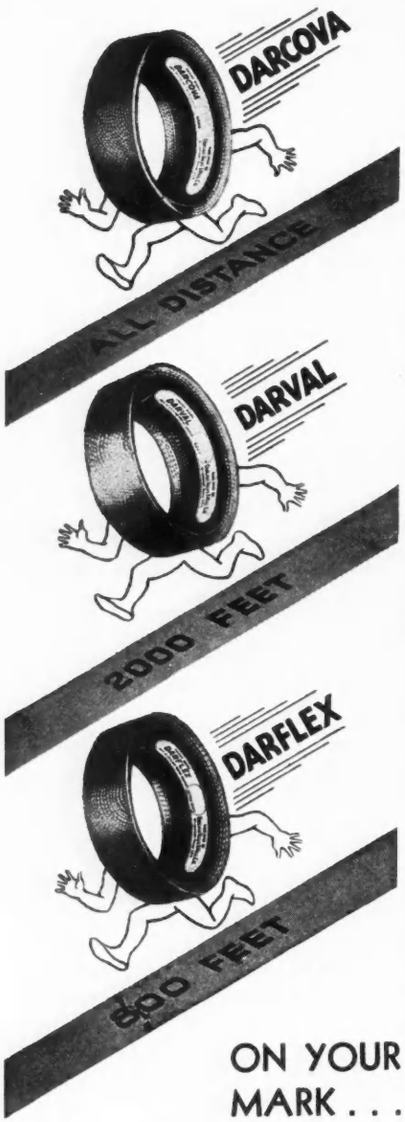

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10¾-inch casing is already on the rack. This well shows considerable gas pressure and heavy mud is being used. Good gas zones are reported from 4750-4850 feet and from 5180 feet to bottom. However, operators plan to disregard these gas zones for the present and as soon as the casing has been set the hole will be deepened. Heavy equipment is being used and the hole is in excellent shape for deepening, although formations on bottom are Cretaceous in age, the test already being well below the structural horizon from which most of the production in the southern portion of California is obtained.

TULARE COUNTY

Los Angeles. — Another test of the old Terra Bella district, Tulare County, is to be made soon. George Clarke's No. 1, will be located in Section 31-23s-28e, two miles east of the town of Ducor.

Numerous tests have been drilled throughout this general area, most of which have had good gas showings and an occasional streak of oil sand. During 1928 and 1929 approximately 25 wells were drilled about five miles to the northwest, over a space of 20 sections, and a few of them were able to develop 10 to 25 barrels per day of production.

MICHIGAN

MICHIGAN WEEKLY STAFF REPORT

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ISABELLA COUNTY—		
Morris-Van Kuren's Bowman 4, 16n-4w, nw ne nw-27	*	3765
J. V. Wicklund's Durnin 4, 16n-4w, ne se ne-27	100	3766
Null & Funk's Taylor 1, 15n-3w, nw sw nw-18	*	3715
GRATIOT COUNTY—		
Arbaugh & Ellis' White 1, 11n-5w, c se se-33	¶3	999
MECOSTA COUNTY—		
Fletcher & Leyman's Taylor 1, 13n-7w, c ne se-30	¶6½	1318
Ide & Glavin's Winslow 1, 13n-7w, c ne ne-30	¶5½	1300
Gordon Oil Co.'s Garner 2, 13n-7w, c ne se-32	¶11	1305
Carmanson Oil Co.'s Mockerman 1, 13n-7w, c ne sw-32	¶14	1283
MONTCALM COUNTY—		
G. M. Obenauer's Brayley 1, 12n-7w, c ne ne-4	¶11	1280
Rowmor Oil Co.'s Hustead 1, 10n-5w, sw ne sw-2	75	3197
Michigan Producer's Strait 2, 10n-5w, ne ne sw-3	2000	3200
A. J. Gray's Kimball 1, 11n-5w, ne ne sw-32	*	3330
OGEMAW COUNTY—		
Webber Oil Co.'s Wilcox 1, 22n-2e, ne ne ne-34	20	2685
ROSCOMMON COUNTY—		
Durham & Jones' Eggleston 1, 21n-2w, nw nw sw-9	*	1756
WAYNE COUNTY—		
Mich Montana Oil Co.'s Fogarty 1, 2s-8e, sw se ne-12	*	500
MACOMB COUNTY—		
H. H. Brown's Bower 1, 3n-14e-29	*	2200

*Failures; †Junked; ¶Million cu. ft. gas.

EASTERN STATES

EASTERN FIELDS WEEKLY STAFF REPORT

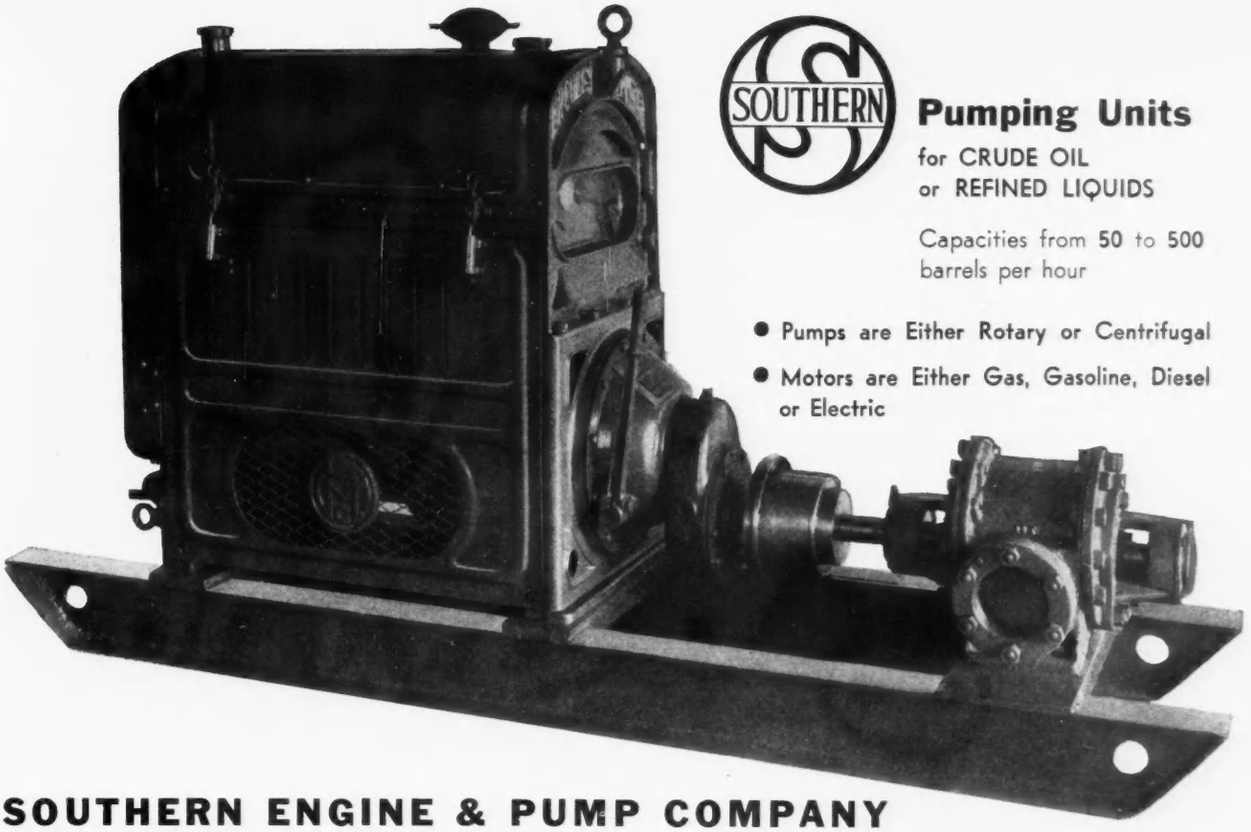
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
PENNSYLVANIA		
ALLEGHENY COUNTY—		
William Snee & Co., Patterson 1	¶	3438
GREENE COUNTY—		
Carnegie Nat. Gas Co., Orndoff 1	4	3107
Washmuth & Callahan, Goodwin 3	¶	1547
WASHINGTON COUNTY—		
Cannonsburg Potter Co., Pittsburgh Coal Co. 1	¶	2405
SOUTHEASTERN OHIO		
COSHOCTON COUNTY—		
Preston Oil Co., McCament 2	25	3169
MEDINA COUNTY—		
E. R. Edson, Miller 65	6	501
PERRY COUNTY—		
Mid-East Gas Co., Anel 1	¶	3170
CRAWFORD COUNTY—		
Carnegie Nat. Gas, Scott 1	¶	2842
VINTON COUNTY—		
Star Gas Co., Myers 3	¶	957
CENTRAL OHIO		
ASHLAND COUNTY—		
Robison & Co., Allerholt 1	*	721
WAYNE COUNTY—		
Nelson & Co., Iches 1	*	630
KNOX COUNTY—		
H. E. Perkins, Underwood 1	2	3173
Upham Gas Co., Wheaton 1	*	....
Delbert Hyman, Anderson 1	*	772
H. E. Perkins, Leply 1	¶	2826
Delbert Hyman, Horn 1	*	772
ATHENS COUNTY—		
Carpenter & Glazier, Smith 2	*	....
Ohio F. G. Co., Warner 1	*	1813
Fee 4	*	950
HOLMES COUNTY—		
Lydic O&G Co., McDowell 2	¶	4519
MUSKINGUM COUNTY—		
Fritz O&G Co., Fee 2	¶	4195
WEST VIRGINIA		
RITCHIE COUNTY—		
W. Va. Oil Co., Fee 19	¶	350
McCall Drilling Co., Hammond 1	¶	2094
ROANE COUNTY—		
H. S. Adams & Co., Norman 1	10	1700
Henderson Oil Co., Ball 3	10	1842
Big Four Drilling Co., Hensbarger 1	¶	1713
CABELL COUNTY—		
R. H. Adkins, Fellure 1	¶	3675
GILMER COUNTY—		
A. E. Ellis & Co., Ware 1	¶	1693
Park Bowser, Ramsburg 10	¶	2486
MONONGALIA COUNTY—		
Carnegie Gas Co., Brand 1	¶	....
KANAWHA COUNTY—		
Columbia Carbon Co., Kanawha Co. 12	¶	....
KENTUCKY		
OHIO COUNTY—		
Cumberland Pet. Co., D. Evans 1	*	....
G. Evans 1	*	....
The Pet. Co., Ben Canary 2	8	....
Chester Oil Co., Bolling & Bartlett 2	20	....
Mariette Oil Co., T. Esdridge 1	5	....
The Pet. Co., Bellamy Hrs. 10	30	....
Teller & Co., A. Whitehouse 4	35	....
James Ellis, Richard 6	*	....

*Failures; †Junked; ¶Million cu. ft. gas.

ALLOCATE NRA FUND

Washington, D. C. — Allocation of $100,000 of Public Works funds to the Petroleum Administrative Board, to enable it to continue in operation until April 1, next, when the amended recovery act expires, was announced October 8 by Public Works Administrator Harold L. Ickes.



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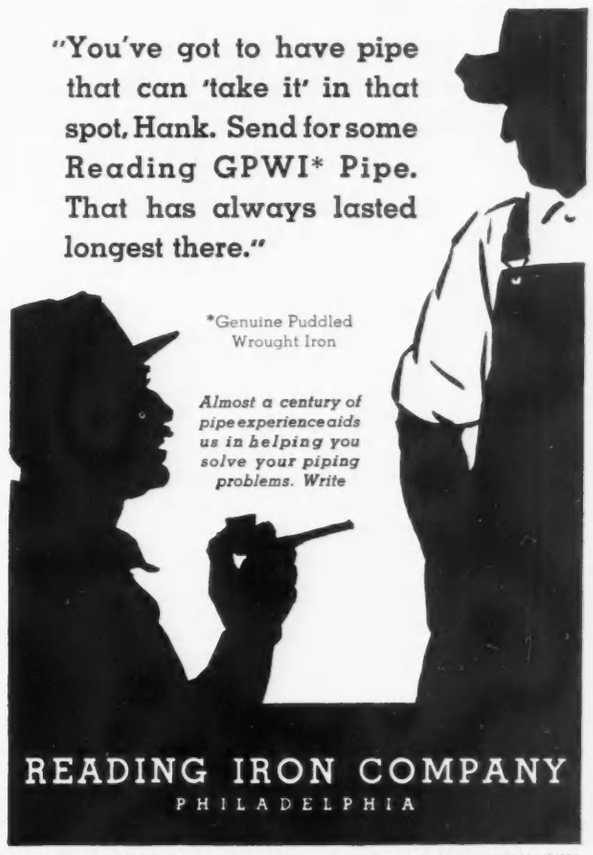

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THE OIL WEEKLY REPORT ON IMPORTANT *Wildcat Tests*

ALABAMA

BALDWIN COUNTY—Danciger O&R Co.'s U. S. Gov't 2 (Ft. Morgan Reservation), rur.

LAMAR COUNTY—DeSoto O&G Co.'s Gardner 1, nw nw 22-15-16, dr 4780 ft shert & lime.

MOBILE COUNTY—J. C. Prine's King 1, n½ ne 4-1n-4w, dr 2975 ft.

ARKANSAS

ARKANSAS COUNTY—Grand Prairie Realty Co.'s Fischer 2, ne nw nw 6-6s-4w, sd 1626 ft.

ASHLEY COUNTY — Benedum & Trees' Holmes 1, ne sw 4-17-5, 15½-in csg 150 ft 10-in 764 ft dr 1340 ft. Texas Seaboard Oil Co.'s Bynum Cooperage Co. 1, se sw nw 34-17s-4w, wocs surf csg.

COLUMBIA COUNTY—J. G. Cubage's Rhea 1, sw se se 12-17-22, sd 3500 ft. Southern States Gas Co.'s Pinewoods Lbr. Co. 1, ne nw 10-20-22, dr 1525 ft elev 231 ft.

DALLAS COUNTY—McCall & Kelly's R. Owen 1, nw sw 26-10-16, elev 360 ft, top Nacatosh 1240 ft, claim so core ahead.

HEMPSTEAD COUNTY — Geo. L. Glass' May B. O'Brien 1, ne sw 32-12s-23w, dk & mir. F. W. Martin's Lafferty 2, se nw 17-14-27, rur.

LA FAYETTE COUNTY—Eal F. Fox's Coleman 2, ne ne 30-16-24, wocs surf csg. Leach et al's Bodcaw Lbr. Co. 1, 20-16-23, lcn. Joe Modisett et al's Frost Lbr. Co. 1, sw sw 29-19-24, elev 261 ft top Arkadelphia 1653 ft cemt 9⅝-in csg 2140 ft wocs td 2815 ft sand (Ozan). S. H. Riggs et al's DuBose 1, se sw nw 35-16-24, fsg whipstock at 2597 ft old td 2817 ft. Transportation Pet. Co.'s Cochrane 1, ne se 26-19-25, Annona chalk 2337-2690 ft dr 2860 ft sandy shale. Wadley et al's Red River Lbr. Co. 1, 19-16-23, lcn.

MILLER COUNTY—King Oil Corp.'s G. W. Crank 1, sw ne 19-16-25, sd 1915 ft. C. W. Hays et al's State of Ark 1, sw se ne 31-15-25, rur. McAlester Fuel Co.'s Cook 1, Cook 1, 18-20-27, mm. L. H. Mahan et al's Miller L&T Co. 1, sw se 29-18-27, 10-in csg 150 ft. Davis & Wair's Capps 1, 11-20-28, lcn.

MONROE COUNTY—Beaver Pet. Co.'s Stinson 1, se sw 27-4-2, 10-in csg 216 ft. Monroe Oil Co. Inc.'s Harvey 1, se se 19-1-1, rur.

OUACHITA COUNTY — Benedum & Trees' Brigham 1, ne sw 29-14-19, dr 350 ft. Snow-Black Pet. Co.'s Jerry Bedford 1, sw sw 32-11-18, fsg 1735 ft.

POINSETT COUNTY—Rockwell Dev. Co.'s Fee 1, 13-11n-3e, no report.

SEIVER COUNTY—Pendleton & Vaughan's Dierks Timber & Coal Co. 1, nw ne 14-10-29, spd.

UNION COUNTY — Arkansas-Southern Oil Co.'s Laney 1, 32-19-16, 10-in csg 176 ft. Ohio Oil Co.'s Sam Oliver 2, nw sw sw 7-17-13, lcn. Proetz & Richardson's Calion Lbr. Co. 1, 10-16-14, sd 3500 ft.

CALIFORNIA

KERN COUNTY

ARVIN — General's Mattson 1, 1-32-29, dr gray sandy shale 8460 ft, slight showings oil 8384-8412 ft.

BUENA VISTA LAKE—Ohio's K.C.L. A-3, 31-31-26, wocs 12¾-in 1212 ft. Shell's B.V.A. 1, 9-32-25, td 9083 ft, recovered fish to dr deeper.

BUTTONWILLOW — Milham Explor. Co.'s Kern 5, 5-28-23, td 3127 ft, made 8,000,000 cu ft gas, shut in.

CALIENTE—O&H Oil Co.'s O&H 1-A, 32-30-30, dr gray sand 620 ft.

COMANCHE POINT—Shell's No. 1, 15-32-29, dr gray sand 4550 ft. Tejon Ridge Oil Co.'s No. 1, 23-32-29, sd 2177 ft.

DEVIL'S DEN—Cumberland Oil Co.'s Cumberland 2, 17-26-18, co 3260 ft.

EDISON—Bauer Oil Co.'s Bauer 1, 21-30-29, dr sandy shale 2810 ft. Navy Oil Co.'s Caravel 1, 19-30-30, dr sandy blue shale 525 ft.

FAMOSA—Ausbrit Oil Corp.'s No. 1, 20-27-27, rig.

GRAPEVINE—Silver Gate Co.'s Tejon 1, 7-10-19, rep equip 2170 ft.

LOST HILLS—Standard's United 1, 2-26-20, td 5816 ft, to set casing.

McDONALD ANTICLINE—R. E. Bering's Maylan 2, 12-28-19, preparing to spud.

McFARLAND—John H. Webb's Alta 1, 16-26-26, dr sandy shale 2350 ft.

SAN EMIDIO—Ohio's K.C.L. C-11-49, 11-11-22, dr sand and shale 4955 ft.

SO. BUTTONWILLOW—Doyle Pet Corp's No. 1, 5-30-24, sd 5265 ft.

SO. DOME—Continental's Gatchell 28-7, 7-25-20, td 7849 ft, 882 ft 3½-in liner lander 7766 ft, wocs.

SO. ROUND MOUNTAIN—Standard's M&T 1, 3-29-29, lcn.

TRICO—Standard's Bolz 1, 33-24-23, rig.

MISCELLANEOUS

FRESNO COUNTY — Taft Well Dr Co.'s Kreyenhagen 1, 33-22-16, dr hard shale streaks sand 4748 ft.

SAN JOAQUIN COUNTY—Amerada's F.D. L. 1, 15-2-5, dr sand and shale 7895 ft; Tracy 31-22, 22-2-5, dr shale streaks sand 3550 ft.

TEHAMA COUNTY — Northern Counties Pet. Co.'s Ewers-Mooney 1, 25-24-3, td 5032 ft, wocs 9-in 4904 ft.

TULARE COUNTY—Geo. Clark's May 1, 31-23-28, lcn.

MONTEREY COUNTY—Shell's Branch 1, 34-24-10, dr black shale 5500 ft.

SUTTER COUNTY—Buttes Oilfields' No. 3, 11-15n-1e, td 5213 ft, r to set 10¾-in at 4750 ft, heavy gas pressure from 5180 to bottom using mud weight material and circulation is constant, slight gas shows 4750 to 4850 ft.

SANTA BARBARA COUNTY

CARPINTERIA—Santa Barbara O&G Co.'s Bryce 1, 29-4-25, rigging cable tools.

GOLETA—Shell's Hollister 1, 10-4-29, abn 2977 ft; Hollister 2, 10-4-29, rur.

LOMPOC—M. J. Freeman's La Brea 1, 11-7-33, td 1263 ft, to deepen.

SANTA MARIA—O. C. Fields Gaso. Corp.'s No. 1, 28-10-33, rig. Union's LeRoy 1, 16-10-34, fsh 3319 ft.

SUMMERLAND—Marmonte Oil Co.'s No. 1, 16-4-26, rur.

VENTURA COUNTY

BARDSDALE—Union's Drydel 10, 12-3-20, dr sand and shale 4490 ft.

FILLMORE—Texas Co.'s Unit Plan 2-1, 29-4-19, dr sand and shale 4108 ft.

LAS POSAS—Las Posas Pet Co.'s Mahan 1, 22-3-20, td 8120 ft, plug 6400 ft, sd.

OXNARD—General's McGrath 1, 26-2-23, dr sand and shale 7176 ft.

PADRE CANYON—Continental's Hobson 1, 15-3-24, lcn.

SHIELLS CANYON — Bankline Oil Co.'s Calumet B-1, 3-3-19, dr shale 3175 ft. Texas Co.'s Shiells 128, 4-3-19, td 7423 ft, plug 4162 ft, to test.

SIMI—Jas. S. Hull's No. 1, 2-2-18, dr shale 840 ft. Paloma Oil Co.'s Paloma-Marr 1, 12-2-18, td 2740 ft, wocs 6⅝-in 2640 ft.

VENTURA—Ventura Explor. Co.'s Sexton 1, 30-3-22, dr sandy shale streaks hard sand 6455 ft.

SOUTHERN CALIFORNIA

BREA CANYON—Pressel-Perry-Tull's Baird 1, 30-2-9, td 4535 ft, swabbed fresh water, some gas.

CARBON CANYON—Tehama Pet. Corp.'s Kraemer 1, 33-2-8, td 3053 ft, run electric coring device, to set 7-in.

EAST MONTEBELLO—Wilshire-Annex Oil Co.'s Baldwin C-1, 11-2-11, dr shale and sand 1466 ft.

EL SEGUNDO—Larco Oil Co.'s Van 1, 12-3-15, dr hard shale 7384 ft.

HAWTHORNE—Lennox Oil Co.'s No. 1, 9-3-14, rig.

KRAEMER—Standard's Yorba Com. 1, 36-3-9, rur.

LAWNDALE — Sovereign Oil Corp.'s Ben Long 1, 22-3-14, td 6069 ft, redr to 3593 ft, wocs 12¾-in.

PICO—Frontier Oil Co.'s No. 1, 12-2-12, td 5246 ft, circulating.

PICO CANYON—N. M. Frazier's No. 1, 31-4-16, dr hard sand 510 ft.

PUENTE—No. American Oil Consolidated's Smith 3-1, 30-1-10, dr hard sand and shale 2477 ft. York Oil Co.'s Sentous 1, 2-2-10, lcn.

RICHFIELD—Leaseholders Dev. Co.'s Vejar 1, 26-3-9, td 4056 ft, co.

SANTA ANA—Continental's Santa Ana Com. 1, 14-5-10, rur.

TOPANGA CANYON—Monarch Pet. Co.'s Sylvia Park 1, sd 212 ft.

TORRANCE—Eyer Pet. Corp.'s No. 1, 20-4-13, sd 50 ft. Pioneer Holding Co.'s Pioneer 1, 33-3-14, rur.

SAN BERNARDINO COUNTY—Equitable Pet. Explor. Co.'s No. 1, 11-10-5, dr shale streaks shell 1434 ft. Hillman-Long's Pellissier 1, 2-3-8, dr hard sand streaks shale 2271 ft.

COLORADO

ADAMS COUNTY — Riddle Petroleum Co. Baxter 1-C, sw 2-3s-6w, rig up, working on water well at 1222 ft.

ARCHULETA COUNTY — Wm. E. Hughes Estate Fee 2, sw 24-3n-2e, td 1085 ft, 900 ft of oil in hole. Testing. Navajo Oil Co. Crowley 1, ne 11-32-1e, td 1130 ft. Pulled 5-3/16-in csg to straight ream. Oil City Petroleum Co. Garnett 2, nw nw sw 25-33n-2e, td at 1520 ft ur 6¼-in csg from 1265 ft.

BOULDER COUNTY—Leslie R. Steele et al Maxwell 1, sw ne nw 24-1n-71w, dr at 1972 ft in black shale.

GRAND COUNTY — Colorado Oil Refining Co. Linke 1, ne sw sw 13-1n-77w, abd in granite at 2600 ft.

HUERFANO COUNTY—Collins & Quinn Fee 1, cnl nw se 4-28n-69w, old td 4116 ft cemented whip stock at 3750 ft and sd.

MORGAN COUNTY—Swisher et al's Lunt 1, sw sw sw 3-5n-60w, 4¾-in csg landed at 1079 ft.

PARK COUNTY—South Park Oil Co. State 1, se se sw 16-11s-17w, running 6⅝-in csg to set on bottom at 3560 ft.

FLORIDA

HILLSBOROUGH COUNTY—Southern Pet. Co.'s Mizell & Williams 1, se ne 4-32s-21e, fsg, td 2465 ft.

JACKSON COUNTY—Ray L. Estabrook et al's fee not given, ne nw se 15-5n-9w, lcn.

LAKE COUNTY—Oil Dev. Co. of Fla.'s Gulf Expl. Co. 1, se se 17-24s-25e, coring below 2010 ft.

PINELLAS COUNTY—Dr. Edw. A. Hill et al's W. J. Meyers 1, ne ne 2-27s-25e, dk.

POLK COUNTY—Dr. Edw. A. Hill et al's Polk County Lbr. Co. 1, nw ne 32-25s-25e, dk.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*
‡—*salt water (completions).*
†—*junked and abandoned.*
¶—*million feet of gas.*
abd—*abandoned.*
bbls—*barrels.*
br—*building rig.*
b.s.—*basic sediment.*
csg—*casing.*
co—*cleaning out.*
dd—*drilling deeper.*
dk—*derrick.*
dr—*drilling.*
fsg.—*fishing.*
ft—*feet.*
hfw—*hole full of water.*
in—*inches.*
lcn—*location.*
m—*milling.*
mim—*moving in materials.*
mit—*moving in tools.*
mot—*milling on tools.*
n, s, e, w—*north, south, east, west.*
oih—*oil in hole.*
owdd—*old well drilling deeper.*
owpb—*old well plugging back.*
pb—*plugged back or plugging back.*
r—*reaming.*
rog—*rig on the ground.*
rur—*rigging up rotary tools.*
rust—*rigging up standard tools.*
sd—*shut down.*
sdtr—*sidetracking.*
sg—*show gas.*
si—*shut in.*
so—*show oil.*
so & g—*show oil and gas.*
spd—*spudding.*
sr—*straight reaming.*
sw—*salt water.*
td—*total depth.*
ur—*underreaming.*
wih—*water in the hole.*
wo—*workover.*
wocs—*waiting on cement to set.*
wosr—*waiting on standard rig.*

NORTH LOUISIANA

BOSSIER PARISH—Ark. La. Gas Co.'s R. O. Roy 3, 18-17n-11w, dr 4138 ft lime. Bossier O&G Co.'s Sherrell 3, se se 13-19n-12w, dr 2075 ft. W. E. Neill et al's Curtis Plantation 1, se se 19-17n-12w, sd 235 ft. Producers O&G Co.'s E. C. Edwards 1, se sw 27-18n-11w, arr deepen 714 ft. Producers O&G Co.'s Pettit 1, ne sw 17-17n-11w, 12½-in csg 250 ft dr 1123 ft chalk. L. R. Skidmore's Davis 1, se se 12-18n-13w, sd 2592 ft. Douglas Spivey's Bossier Assn. 1, sw sw 16-18n-11w, sd 815 ft.

CADDO PARISH—W. F. Hyde's Thigpen-Herold 1, nw ne se 5-15n-15w, elev 281.8 ft, top Nacatosh 1143 ft dr 1570 ft gumbo & strks lime. A. D. King's Roach 1, 4-14n-16w, sd 2712 ft chalk. Tystan, Inc.'s Jolly 1, 22-22n-16w, top red beds 2345 ft sd 2350 ft.

CALDWELL PARISH—Caldwell Drlg. Co.'s Gore 2, ne se 30-12n-3e, sd 768 ft. Critchett & Wood's Kyle 1, 18-11n-3e, pb old td 2228 ft. G. W. Zeigen et al's La. Cent. Lbr. Co. 1, nw sw sw 25-13n-3e, sd 1190 ft.

CATAHOULA PARISH — McIntyre et al's Tensas Delta Lbr. Co. 1, sw nw se 18-10n-2e, sd 200 ft. Phillipi et al's La. Cent. Lbr. Co. 2, nw nw 41-9n-6e, dk.

CLAIBORNE PARISH—J. H. Lester's Zollie Green 1, nw ne nw 18-21n-6w, dr 1100 ft. E. T. Oakes et al's Patton Est. 1, ne ne 1-20n-5w, elev 357.3 ft top red beds 3460 ft dr 3722 ft. Ryan Oil Corp.'s Gladney 1, ne sw 27-20n-7w, spd.

DE SOTO PARISH—Century O&D Co.'s D. Bailey 1, ne sw 25-11n-14w, dr 1910 ft shale. Jal Drlg. Co.'s Scales A-1, se se 35-13n-12w, cementing 8¼-in csg 2390 ft. C. T. Ruffin's Elmo P. Lee 2, nw sw 3-14n-13w, dr 1900 ft. Ed Saffold et al's Thigpen 1, sw ne 33-13n-13w, owdd, td 1732 ft chalk. Snow Drlg. Co.'s Stell 1, 5-12n-16w, arr deepen 200 ft. M. L. Stephens et al's Alston 1, ne sw 11-11n-16w, arr swab td 2055 ft Cardinal Oil Co.'s A. D. Jones 1, se nw 20-14n-16w, setting short string 4½-in csg, 6⅝-in csg cemtd 2583 ft td 2649 ft (formerly carried as Bird et al's test). The Hunter Co.'s S. J. Moats 1, ne sw 25-12n-15w, dr 2250 ft.

LINCOLN PARISH—Lide & Greer's Fowler 1, nw sw se 10-17n-4w, top Nacatosh 2275 ft. Annon a chalk 2377-2650 ft anhydrite 4635-5084 ft dr 5285 ft hd lime.

MADISON PARISH—Southern Land & Expl. Co. Deltic Inv. Co. 1, nw nw 1-17n-12e, arr deepen td 2048 ft.

NATCHITOCHES PARISH—Roy Raines et al's Raines 1, sw sw 28-9n-10w, claim sg 4303 ft (Washita sand), fsg hung ds near top hole, td 4303 ft. Union Pet. Co.'s DeBlieux 1, ne nw 83-10n-7w, dr 1650 ft.

OUACHITA PARISH—American Liberty Oil Co.'s Golson 1, nw nw 25-17n-1e, elev 160 ft top red beds 3575 ft top upper Glen Rose 3942 ft claim so after two electrical tests, setting 5-in csg around 5200 ft td 5378 ft.

RAPIDES PARISH — Amerada Pet. Co.'s Weil 1, 53-1s-2e, tested 4 thribbles oil, one sw 5704-52 ft arr deepen.

TENSAS PARISH—H. M. Jones' Hankins 1, 30-12n-10e, mim.

WEBSTER PARISH — Bennett et al's Fulbright 1, ne ne 1-18n-10w, sd 2310 ft.

WINN PARISH—P. E. Parsons et al's Tremont Lbr. Co. 1, nw sw 10-12n-10w, top Cane River 960 ft sd 1240 ft brown gmbo & bldrs (Wilcox).

SOUTH LOUISIANA

CALCASIEU PARISH—Fred Oil Co.'s Faist 1, sec 26-8s-10w, sd 4025 ft. Wheeler Oil Co.'s School Land 1, s of Iowa field, sec 16-9s-7w, sd 6900 ft.

CAMERON PARISH—Magnolia's Broussard 1, Willow Lake area, sec 13-12s-9w, dr shale 8740 ft.

EVANGELINE PARISH—Sparks-Mitchell & Jacobson's Vidrine 1, sec 47-3s-2e, dr shale 1380 ft.

EAST BATON ROUGE PARISH—Superior's Duplantier Community 1, University Block, sec 65-7s-1w, woc 6416 ft.

IBERIA PARISH—Texas Co.'s Fausse Point 1, s flank of dome, sec 35-11s-8e, fsh 6400 ft. Jefferson Lake Oil Co.'s Lake Pigneur 274, Jefferson Lake, 12s-5e, no report.

PLAQUEMINES PARISH—Wrather et al's Hero 1, near Oakville, sec 72-14s-24e, dr shale 4706 ft.

ST. BERNARD PARISH—Emerald Pet. Co.'s Shell Beach Properties, Shell Beach prospect, sec 31-13s-15e, dr shale 2130 ft.

ST. MARY PARISH—F. F. Kramer's Robinson 1, sec 78-14s-14e, lcn.

ST. MARTIN PARISH—Texas Co.'s State Lake Mengouloi 1, 3 mi n of Bayou Chene, sec 10-9s-9e, dr shale 3843 ft. Tide Water Oil Co.'s Smede 1, St. Martinsville prospect, sec 57-11s-6e, dr shale 5430 ft.

ST. TAMMANY PARISH—Danciger Oil & Refining Co.'s E. F. Holdsworth 1, Slidell prospect, sec 26-9s-14e, ru.

MICHIGAN

ALLEGAN COUNTY—Heath Oil Co.'s Terpstra 1, 3n-14w-34, dr 2050 ft. Gerrit Vander Least's Berrens 1, 4n-14w, sw se ne-26, rig.

ARENAC COUNTY—Deep River Oil Co.'s Stocko 1, 19n-4e-27, sd 2700 ft.

BAY COUNTY—McClanahan Oil Co.'s Dahike 1, 17n-4e-27, dr 2350 ft. M. C. Fordyce's Suszko 1, 18n-3e-11, so & g 2036, water 2200 ft, dr 2400 ft.

CLINTON COUNTY—John F. Martin's Scott 1, 8n-2w-22, rig.

GLADWIN COUNTY — United Producer's Nettleton 1, 17n-2e-24, dr 1500 ft.

GRATIOT COUNTY—St. Louis Pipe's Loganbach 1, 12n-2w-10, dr 3200 ft; Northeast Mutual 1, 12n-4w-25, sd 3299 ft. Jackson and Myer's Garner 1, 9n-4w-10, dr 2850 ft. C. H. Bell's Veile 1, 12n-1w-13, rig.

IONIA COUNTY—J. V. Wicklund's Butler 1, 8n-6w-10, sd 3083 ft. Gordon Oil Co.'s Muir Bank 1, 8n-5w-30, sd 800 ft. Greer and Meal's Welch 1, 8n-6w-33, rig.

JACKSON COUNTY — Petroleum Development's Mulvaney 1, 1s-1e-31, sd 1500 ft.

KENT COUNTY—National Mineral's Lewis 1, 10n-11w-5, dr 2400 ft. James Barton's Smith 1, 10n-10w, se ne ne-29, rig.

MIDLAND COUNTY—K. K. Leibrand's State 1, 15n-2e-32, dr 1400 ft.

MONTCALM COUNTY—Frank Asam's Pakes 1, 10n-6w-7, dr 1200 ft. Jetter and Lima's Long 1, 9n-6w-1, so 2740 ft, dr 2800 ft. Rex Oil Co.'s Newland 1, 12n-8w-2, testing so 3063 ft.

SAGINAW COUNTY — King Drilling Co.'s Kube 1, 12n-2e-31, dr 2400 ft.

MISSISSIPPI

FRANKLIN COUNTY—Fred E. Courson et al's Homochitto Lbr. Co. 1, se sw 31-6n-2e, installing new drilling line, td 2204 ft.

GEORGE COUNTY—Gulf Ref. Co.'s Dantzler Lbr. Co. 8, nw se 10-2s-9w, sd 3305 ft. United Gas Pub. Serv. Co.'s Williams 1, sw sw 6-1s-5w, dr 2460 ft.

WARREN COUNTY—Harry W. Elliott's R. L. Parker 2, 14-14n-1e, elev 80 ft co to deepen, 1602 ft.

WASHINGTON COUNTY — Mid-Continent Developments' Lee 1, 33-15n-8w, arr deepen 2100 ft.

MONTANA

CARBON COUNTY—Bailey Round Butte Oil Co.'s 1, ne se 3-6w-22e, dr at 1405 ft.

FERGUS COUNTY—Judith Operating Co.'s Gov't. 1, csw sw 26-22n-17e, running the 12½-in csg to 400 ft. Emmons et al's 1, ne ne 6-20n-17e, dr at 2185 ft.

GALLATIN COUNTY—Montana Gas & Petroleum Co.'s Tice 1, ne ne ne 28-1n-2w, dr at 2470 ft.

ROSEBUD COUNTY — Birney Oil & Gas Co.'s 1, sw sw sw 6-6s-42e, cementing the 10-in csg to 500 ft. Water encountered at 410 ft.

STILLWATER COUNTY — Continental Oil Co.'s No. 1 Parker, se sw 25-5s-17e, set the 13-in csg at 267 ft and dr at 2115 ft.

NEW MEXICO

CHAVES COUNTY—John Tannehill's Campbell 1, ne se 1-11s-25e, running 6⅝-in csg to 1064 ft to shut off heavy flow of sulphur water at 1020-30 ft.

DE BACA COUNTY—Atlantic New Mexico Oil Co. Ingham 1, 32-1s-21e, lcn. Ralph Burlingham Woods 1, sw sw 6-4n-20e, standing rigged. Mid-Continental Engineering Co. State 1, 27-4n-22e, spd and sd.

SANDOVAL COUNTY—Continental Oil Co.'s 1 Bar Cattle Co. 1, se 2-13n-4w, fsg for twist off at 4396 ft.

UNION COUNTY — Quaker State Oil Co. Zurich 1, cn½ sw sw 2-21n-34e, mi standard machine.

EDDY COUNTY—Geo. F. Getty Oil Co.'s Andrew Dooley 7, swc nw 24-20s-29e, elev 3309 ft, so&g in black lime 6417-36 ft, cor 6470 ft with 5000 ft w and show oil in hole.

LEA COUNTY—Amerada's M. J. Byrd 1, c ne nw 12-20s-36e, Monument area, lcn. Barnsdall Oil Co.'s J. W. Cooper 1, c ne ne ne 12-20s-36e, Monument area, elev 3567 ft, top anhydrite 935 ft, dr 2430 ft. Culbertson & Irwin's Sue Richardson 1, c sw se 10-21s-32e, elev 3808 ft, top anhydrite 1405 ft, top salt 1568 ft, base salt 3315 ft, top lime 3355 ft, sulphur w 3863-68 ft, dry and abd 3872 ft. Gypsy Oil Co.'s Baxter V. Culp 2, c sw nw 19-19s-37e, Monument area, woc 263 ft; State-Graham-South 1, c se se 2-20s-36e, Monument area, elev 3579 ft, cem cas 2353 ft; Steve B. Taylor 1, c se ne 24-18s-38e, 2¾ mi ne Hobbs field, elev 3613 ft, dr 1900 ft. Jeffers Oil Co.'s C. Britt-Conoco 1, c se nw 7-20s-37e, Monument area, elev 3554 ft, top anhydrite 970 ft, salt series 1115-2270 ft, dr 2850 ft. Harry Leonard et al's C. W. Justis 1, swc nw nw 20-25s-37e, elev 3067 ft, dr 3400 ft. Maljamar O&G Corp.'s Baish 5, c sw ne 21-17s-32e,

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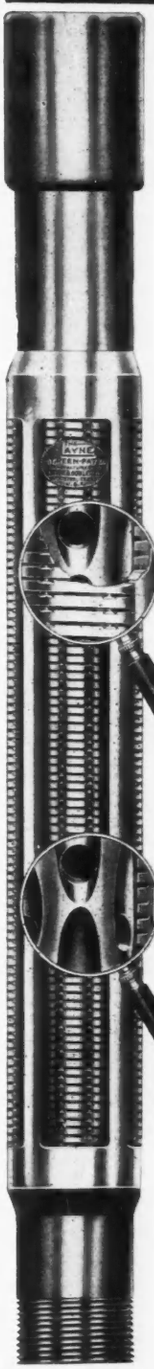

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Maljamar field, mim. N. G. Penrose & Rowan Drl. Co.'s Will Carry-Humble 1, c nw sw 22-22s-37e, sp. Repollo Oil Co.'s M. J. Byrd 1, nec nw ne 11-20s-36e, Monument area, cem cas 273 ft. Phillips & Pure Oil Co.'s Woolworth 1, lse 2, c ne nw 33-24s-37e, 3½ mi e of Cooper field, elev 3265 ft, top brown lime 2772 ft, fsh 3483 ft; Woolworth 1, lse 4, c se sw 8-25s-37e, dr 300 ft; Woolworth 1, lse 3, c sw sw 6-25s-37e, North Jal area, elev 3187 ft, top brown lime 2700 ft, cem 7-in cas 3040 ft, td 3522 ft, completed, flowed 62 bbls 24 hrs, 33% water. Republic Prod. Co.'s Selby-Maveety 1, c se sw 35-19s-36e, elev 3614 ft, dr 2210 ft. Skelly Oil Co. et al's B. F. Harrison 1, c nw sw 5-23s-37e, sp; State-Monument 1, c se se 15-19s-36e, lcn. Sun Oil Co.'s W. B. Maveety-Weir 3, c se ne 35-19s-36e, Monument area, elev 3611 ft, dr 2710 ft; H. S. Record 1, c nw nw 22-22s-36e, s Eunice area, elev 3539 ft, top anhydrite 1490 ft, salt series 1592-3015 ft, top brown lime 3030 ft, used acid twice and shot 360 qts nitro, td 3844 ft, completed, flowed 82 bbls 18 hrs. Superior Oil Co.'s State 2-A, c nw ne 2-20s-36e, elev, 3603 ft, dr 2555 ft. Sam K. Vierson & Brown's W. D. Robinson 1, c nw se 14-11s-32e, elev 4355 ft, rig. The Texas Co.'s State 1-E, c sw sw 1-20s-36e, elev 3577 ft, dr 1855 ft. Tide Water Oil Co.'s State 1, sec se ne 14-18s-37e, nw Hobbs field, elev 3689 ft, dr 4255 ft.

TEXAS GULF COAST

BRAZORIA COUNTY—Gulf's Wilkes & Smith 1, Lochridge prospect, J. W. Hall sur, ru. R. R. Osburn's J. L. Jones 1, 4 mi w of West Columbia, J. Thompson sur, ru.

CHAMBERS COUNTY—Woodley Pet. Co.'s A. G. Blanke 1, 1¾ mi ne of Mason's R. M. White 1, H. & T. C. sur, sec 41, dr shale 7394 ft. Salt Dome Oil Co. & Gem Oil Co.'s Lawrence 1, Cotton Lake, J. Grant sur, dr shale 1429 ft.

COLORADO COUNTY—Clyde Creighton et al's H. Witte 1, s of Bernard, H. Witte sur dr shale 4712 ft.

FT. BEND COUNTY — Thompson Dr. Co.'s Brown 1, Pilant Lake, Geo. Menefee sur, abd 6035 ft. Texas Gulf Prod. Co.'s Winston 1, North Richmond prospect, S. Isaacs sur, ru.

HARRIS COUNTY—E. E. Young's Griffith 2, w of Humble, A. R. Bodeman sur, dr shale 4110 ft.

JEFFERSON COUNTY—Sun Oil Co.'s Hebert & Broussard 1, s of Lovall Lake, Labelle area, B. Backmon sur, curing titles and woc at 8210 ft. Jack Frazier's Oswald 1, Cheek prospect, M. Peveto sur, dr shale 4710 ft. Humble Oil & Refining Co.'s White 1, Jefferson Island prospect, T. & N. O. sur, No. 370, ru.

MATAGORDA COUNTY — Helmerick & Payne's Hawkins 1, Sheppards Mott, D. A. McCarthy sur, dr shale 5525 ft. H. M. Smith Corp.'s Wadsworth Estate 1, S. R. Fisher sur, dr shale 8750 ft. Sterling Oil & Refining Co.'s Baer 1, sw of Sargent, S. Hoit sur, sd 1830 ft.

MONTGOMERY COUNTY—Wm. Thompson et al's J. B. Scott 1, F. Wheeler sur, dr shale 3485 ft.

ORANGE COUNTY — Blue Line Oil Co.'s Pett 1, n of Orange, R. Ballew sur, dr shale 1850 ft.

SAN JACINTO COUNTY—Darby Jones J. R. Bennett 1-A, David Beer sur, pb from 5454 ft 3580 ft to test sands.

WHARTON COUNTY — Navarro Oil Co.'s E. P. Schoelman 1, Mancha prospect, N. Mancha sur, abd 7732 ft. Pure Oil Co.'s E. Page 1, Blue Basin prospect, J. Pirie sur, dr shale 5132 ft. Sterling Oil & Refining Co.'s F. Janek 1, East Barnard prospect, I. Scott sur, tested salt water from 7863 to 7875 ft. Texas Co.'s Pierce Estate C-1, Five Corners prospect, Jno. Caldwell sur, dr shale 4586 ft.

EAST TEXAS

ANDERSON COUNTY — Tide Water & Texas Seaboard's N. N. Wills 21-A, Cayuga field Trinity test, elev 308 ft, cem 7-in cas 8750 ft, tested hot salt w at 8867 ft, pb from Basal Trinity water sand at 9082 ft to 8734 ft to perforate cas; Shaw-Cern 2 (1216-ac), Daniel Parker sur, Long Lake area, elev 298 ft, Pecan chalk 3555-3618 ft, dr 3760 ft.

BOWIE COUNTY—Tex-Ark Oil Co.'s J. B. Hamilton 1 (40-ac), Jessie Milam sur, elev 272 ft, sd 1120 ft. Woodley & Bentley's J. D. Lumpkin 1 (245-ac), John McDermott sur, 1¼ mi sw of Dalby Springs, sd 120 ft.

CAMP COUNTY—E. J. Moran, G. E. & Ray Hubbard's W. M. Mitchell 1 (100-ac), L. Rose sur, 1½ mi n of Newsome, lcn.

CASS COUNTY—American Liberty Oil Co.'s J. B. Rogers 1, C. M. Robinson sur, Rodessa sur, lcn. Stanley A. Thompson et al's W. A. Hooton 1 (498-ac), John H. Kernels sur, 5 mi w of Avinger, top Pecan (broken) chalk 2365 ft, hard chalk 2464-2880 ft, second chalk 3320-25 ft, dry and abd in Georgetown lime 4039 ft. United Production Corp.'s Lake Holt (Thurmond Unit) 1, John H. Coleman sur, 5½ mi sw of Rodessa field, lcn.

CHEROKEE COUNTY—Jacksonville O&G Corp.'s H. B. Henderson 1 (40-ac), J. Pineda sur, 5 mi ne Jacksonville, elev 490 ft, sd 2200 ft.

COLLIN COUNTY—Port Bolivar O&R Co.'s Clarkston-During 1-A, Wm. Creager sur, sp; J. Shirley 1, James Sorrell sur, Washita lime 1762-63 ft, fsh 1955 ft.

ELLIS COUNTY—Beasley O&G Co.'s Mrs. Erie Roller 1 (200-ac), Ruidoso Irrigation Co. sur, 1 mi s of Crisp, sd 160 ft.

FREESTONE COUNTY—J. A. Hoover et al's W. W. McFall 1 (65-ac), S. Garrison sur A-749, 4 mi se Wortham, sp.

GRAYSON COUNTY—Olson Drl. Co. et al's Southwestern Life Insurance Co. 1 (160-ac), J. C. Jamison sur A-865, 3 mi n Pottsboro, crooked hole 2298 ft, pb to 1500 ft. Port Bolivar O&R Co.'s Creed Taylor 1, J. Fitzhugh sur, 3 mi se Gunter, dk.

HOUSTON COUNTY—Housh, Thompson & Zeni Oil Co.'s Houston County Timber Co. 1, I&GN Ry. sur No. 31, A-599, 2 mi n Kennard, mim.

HUNT COUNTY — J. F. Morrissey Co., Inc.'s P. B. Fry 1-A (146-ac), Calloway Davis sur, 7 mi se Ladonia, elev 561 ft, top Paluxy 3605 ft, top Red Beds 3806 ft, fsh dp 4442 ft.

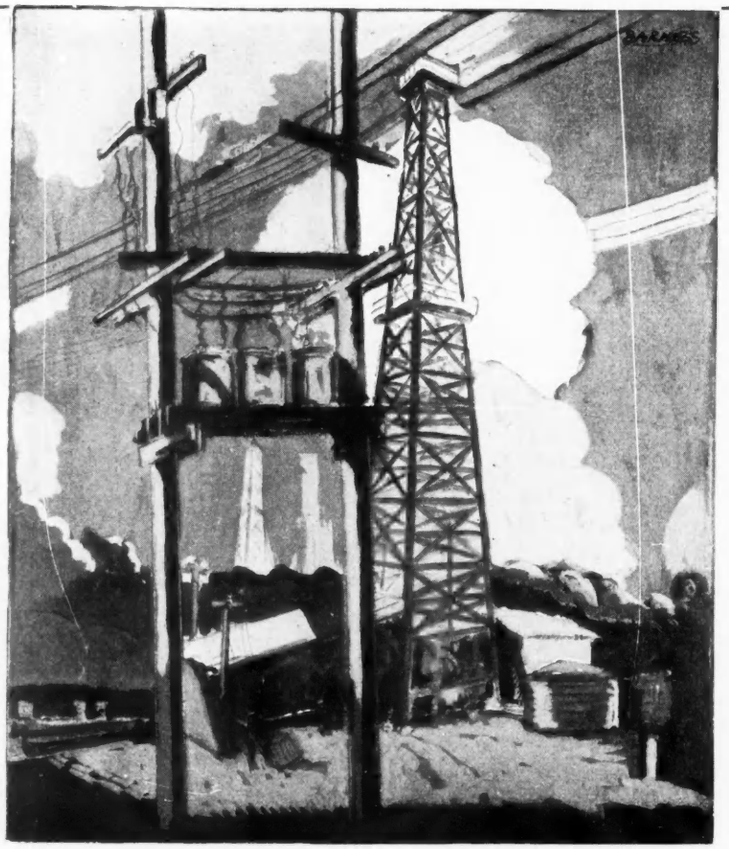
KAUFMAN COUNTY—C. C. Pearson et al's (was Murray & Emerson) G. W. Martin 1 (100-ac), W. F. C. Butler sur, elev 429 ft, top Austin chalk 1940 ft, dr 2075 ft.

LAMAR COUNTY—North Texas Synd's (E. T. Bradley, Tr.) Alice Wright (Reese) 1 (163.3-ac), Alfred Moore sur, 2 mi ne Caviness, sd 1827 ft. Texas Gulf Pet. Co.'s A. L. Darnell 1 (40-ac), H. L. Williams sur, 4 mi ne Paris, elev 544 ft, Austin chalk 816-864 ft, top Woodbine 948 ft, top Red Beds 1002 ft, set 7-in cas 2063 ft, td 2112 ft, swabbed water.

LEON COUNTY—Tide Water & Texas Seaboard's A. W. Johnson 1 (425.81-ac), Simon Sanchez sur No. 7, Long Lake area, elev 230 ft, Pecan chalk 3630-3830 ft, Austin chalk 4616-4919 ft, top Woodbine series 5221 ft, gas sand 5258-64 ft, td 5313 ft, perf cas for gas well.

LIMESTONE COUNTY—Dan H. Daugherty et al's Sallie Welch 1 (94-ac), Pedro Varella sur, Austin chalk 2350-2650 ft, top Woodbine 2890 ft, td 3121 ft, tested dry after using 1000 gals acid solution, sdo. David J. Crawford et al's Mary J. Ward 1 (28-ac), Pedro Varella sur, rig.

MORRIS COUNTY—J. N. Buchanan et al's



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P. M. Staggers 1, J. D. Nelson sur, elev 363 ft, sd 4327 ft. C. M. "Dad"' Joiner et al's lee 1, Wm. Coffey sur, lcn. Steve J. Rotondi et al's W. & C. Smith 1 (50-ac), M. C. Vela sur, 2½ mi sw of Naples, sd 1760 ft. B. L. Watson et al's E. Hall 1 (177-ac), Levi Jordan sur, 5 mi ne Daingerfield, top sand 4175 ft, elev 360 ft, sd 4248 ft.

NAVARRO COUNTY—L. N. McCulloch et al's Berry Bros. 1 (35-ac), W. W. Moss sur, Austin chalk 751-1060 ft, sd 1477 ft. E. M. Thomason & Co., Inc.'s T. P. Shivers 1 (69-ac), W. R. Bowen sur, 2 mi s Corsicana, sd 1287 ft. Wiggins-Albritton & Wiggins' D. A. Donodo 1 (63½-ac), Highnote & Caudle sur, 2 mi sw Corsicana, elev 467 ft, sd 1439 ft.

RAINS COUNTY—W. A. Allen, Geo. W. McClung & Harry B. Baker's Ida Bullard 1 (75-ac), Nancy Brantley sur, 2 mi sw Emory, dk; S. P. Cain 1 (98½-ac), J. Harges sur, A-109, 1 mi nw Emory, lcn; Mrs. Olma Giles 1 (77-ac), Thos. Cunningham sur, 6½ mi sw Emory, dk.

RED RIVER COUNTY—J. S. Abercrombie Co.-Harrison Oil Co.'s So. Pine Lumber Co. (Wight) 1 (62½-ac), Sam Pew sur, 6 mi n Bagswell, dry and abd in Georgetown lime 892 ft; Rose 1 (208-ac), Francis Smith sur, rig. W. G. Clark & R. H. Chew's J. F. Brooks 1 (321-ac), Ben Gooch sur, ½ mi s Bagswell, elev 484 ft, dk. Garson & Seigel's W. T. Morris 1 (351-ac), Joseph Guest sur, 1 mi s Detroit, rig.

RUSK COUNTY—J. W. Shipman et al's Citizens Nat'l Bank 1 (125-ac), J. J. Y'Barbo sur, 4 mi ne Henderson, elev 432 ft, top Pecan chalk 2355 ft, jkd at 2780 ft, skid rig. L. B. Prior & A. B. Edwards' W. R. Poston 1 (50-ac), Jacob Roth sur, elev 429 ft, top Pecan chalk 2708 ft, coring 3895 ft.

UPSHUR COUNTY—Thos. D. Humphrey's Frank Farmer (Flewellen) 1 (256-ac), John B. Goy sur, 8 mi ne Gilmer, Pecan chalk 2633-3090 ft, Austin chalk 3840-65 ft, cap rock 3865-66 ft, tested sw in sand, td 3889 ft, dry and abd. Joe A. Papadakis et al's W. H. Allen 1 (37-ac), Lino Gonzales sur, Pecan chalk 2620-3198 ft, Austin chalk 3675-3758 ft, Woodbine sand 3771-76 ft, dry and abd.

VAN ZANDT COUNTY—J. H. "Bill" Gilliam et al's E. S. Marten 1 (416-ac), Jas. Hamilton sur A-407, 3 mi ne Wills Point, lcn. Pioneer Exploration Co.'s Beulah Spruce 1 (50-ac), J. Denman sur, 8 mi s Canton, 5000-ft contract, dr 550 ft.

HARRISON COUNTY — Adams & Bird's Washburn Lbr. Co. 1, F. Jordan sur, dk & mir. Itex Oil Co.'s T. J. Taylor 1, W. H. Payne sur, pb to 5735 ft arr test old td 5853 ft.

PANOLA COUNTY — Steve Blazek's Robt. Johnson 1, J. Johnson sur, claim so, sd for csg 1983 ft Modissett & Jolly's Loyd Thompson 1, D. McDonald sur, dk. McAneny & Flinchbaugh's G. H. McCormick 1, Jas. P. McAdams sur, elev 381 ft base Pecan Gap 2433 ft, claim 10.5 ft saturated sand, cemt 7-in csg 2654 ft, td 2674 ft.

SOUTH TEXAS

BANDERA COUNTY—Palm Winn Oil Co.'s R. B. Watson 1, A. Curver sur, No. 71, 2 mi n Medina City, ur 2035 ft. Plateau Oil Co.'s R. G. Garrison 1, sec 506, GC&SF sur, 8 mi sw Medina City, elev 1831 ft df, dr 4310 ft.

BASTROP COUNTY—Batts & Jarmon's Mrs. Mary Harris 1, J. Maximillian sur, N. Dale area, elev 432 ft, df, sd 2285 ft. Marts & Beavans' Scott 1, 1700 ft nwl, 5350 ft nel of W. McLaughlin sur, sp. Joe Mills' W. W. Litton 2, A. Navarro sur, N. Cedar Creek area, coring 1850 ft, last rept. Port Isabel Oil & Gas Co.'s Story 1, 450 ft nl & wl Lot 5, Mark Young Ranch owned by John T. Story 205 acres, dr 150 ft.

BEE COUNTY—Mills Bennett's Mrs. Wm. Rapp 3, C. A. Dugat sur, Ab 521, w outpost Dirks field, coring 4476. Hill, West & Kleiner's G. A. Ray 1, W. B. Blanchard sur, sw outpost West Tuleta field, dr 3800 ft. D. V. Smith's B. B. Atkins 1, M. Woods sur, lcn, dropped. Worth Oil Co.'s Rutledge 3 (1-B), A. Hadley sur, Patent 34, 1/3 mi sw Rutledge pool, coring 3350 ft. R. J. Worthington et al's S. B. Chestnut 1, B. Q. Hadley sur, 2000 ft se Worth well, lcn.

BEXAR COUNTY—American Gas Co.'s Oliver 5, M. F. Rodriquez sur, Gas Ridge, temp abnd 2902 ft. James B. Cunningham et al's D. F. Ridder 1, Baerrera sur, Abs 50, 2 mi e McDonna, testing 860 ft. Fay T. Chew et al's Bonkowski 1, in 130-ac tr, sec 9, Jacinto Pena sur, 1½ mi e Adkins, lcn for 1250-ft test. Dorine Oil Co.'s S. Tudyk 2, blk 4, F. Cardenas sur, 18 mi e San Antonio, td 759 ft, pb 610 ft, set csg 575 ft, completing. Joe Deupree's R. S. Coffey 1-A, F. Rodriquez sur, 7 mi s of San Antonio, dr 400 ft. C. J. LeCompte's A. Herbst 1, M. Leal sur, 4 mi s San Antonio, sd 377 ft. McPhee & Briggs' Florence Lamb 1, M de Luna sur No. 4, 22 mi s San Antonio, sd 2452 ft. Nick Marosis' Joe Florey Est. 1, Stephen Jett sur, at Von Ormy townsite, swabbing 800 ft. Mid-Tex Prod. Co.'s Walker 1, S. W. Dobie sur No. 79, 10 mi n San Antonio, lowering csg fr 1936 ft to 2090 ft, top Travis Peak 2025 ft. Carrol G. Raborn's Claud McCauley 1, Wm. Harris sur No. 52, 4 mi s San Antonio, sd 965 ft. H. B. Starkey's (was Joseph H. Parker) M. McCloskey 1, F. A. Desaque sur, 5 mi nw Somerset, cored saturated sand and sandy shale 722-79 ft, ru new rig to run csg. Fred Thorman's Sahm 1, Peter N. Hays sur No. 3, 2 mi s of Martinez, sp.

BLANCO COUNTY—R. T. Rowe & W. E. Nixon's Polk Morresey 2, T. H. Webb sur No. 11, 2½ mi e Blanco City, dr 220 ft.

BROOKS COUNTY—United Prod. Co.'s K. J. Hocker 1, Palo Blanco de Maguelles Gr, Palo Blanco area, td 5351 ft, set 980 ft 10½-in csg, washing out bridge to dd. Winfield & Moser's W. Singer 1, se¼ sec 312, nw part of county, dr 450 ft.

CALDWELL COUNTY—Ballard & Whitting's A. G. Bridges 1, S. Seal sur, td 2204 ft, top chalk 2048 ft, on pump. S. S. Cargill's Damerau 3, Dillard Cooper sur, Branyon area, sp. C & C Fuel Oil Co.'s (Clark & Crouch) Jolly 1, Cornelius Crenshaw sur, Larremore area, dr 1000 ft. Detroit-Texas Dev. Co.'s W. P. Dunlap 3, S. F. Sanders sur, Dunlap area, testing 2322 ft. J. J. Elam et al's Francis-Brown-Cochran 1, W. F. Young sur, 5 mi e Luling, dk. R. Y. Walker's Walker Bros. 2, S. Seal sur, set 7-in csg 2030 ft, wocs.

CALHOUN COUNTY — Continental Oil Co.'s Am. Nat'l Realty Co. (Moody) 2, sec 6, blk C, P. Garcia sur, 9 mi se Seadrift, woc 7384 ft. Crown Central Pet. Corp.'s Wilson 1, A. Esparza sur, Port Lavaca area, td 6315 ft, pb 3300 ft to test. Halliburton Oil Prod. Co.'s D. Burton 4, M. Sanchez sur, Port Lavaca area, td 7460 ft, pb 6370 ft sdtr. Matagorda Oil Corp.'s Brundrett Est. 1, Lot No. 294, Brundrett Estate 1, J. Power and J. W. Hewitson League 2, Matagorda Island, set 16-in csg 176 ft. Texas Company's A. Shofner 2, A. Sanches sur, Port Lavaca, completing 6234-45 ft, show little o&g.

CAMERON COUNTY—J. F. Anderson's Turfitt 1, blk 397, San Benito sub, Espirtu Santos Gr, 3 mi ne Rio Hondo, sd 5300 ft. W. T. Daniels & King-Woods Oil Co.'s Port Isabel Co. 1, center lot 17, Shares 29, 30, and 31, Buena Vista Gr, 6 mi n Bayview, sp & sd, wor.

DEWITT COUNTY—R. Bourke's Steinman 1, Uriah Blue sur, 6 mi s Yoakum, sd 2356 ft.

DIMMIT COUNTY—Diamond Half Oil Co.'s A. Eardley Est. 1, R. G. Morgandale sur No. 6. Ab. 1322, 5½ mi nw Carrizo Springs sand & shale 2393-2405 ft, sand 2405-65 ft, shale 2415-17 ft, dst show nothing, now dd. Joe Lundin et al's Nueces Land & Irrigation Co. 1, Lot 61, blk 7, Bermuda Land sub, 12 mi ne Carrizo Springs, lcn, dropped.

DUVAL COUNTY—Alpha Oil Co.'s M. C. Hubbard 1, sec 69, s of Loma Novia field coring 2630 ft. The California Co.'s Gruy Est. 1, sec 157, in Kohler area, sp. Continental Oil Co.'s Clara D. Sevier 6-A, sec 447, Driscoll field, td 3435 ft, sand 3406-23 ft, ran csg to td, made small well through perforations, may dd. J. H. Chandler's Rita De Pena 1, Sh 4, Mesquite Gr, elev 665 ft df, sd 3360 ft. Howeth & Swiger et al's Rogers Est. 1, sec 15, 9 mi nw of San Diego, lcn. P. K. Kelly's Tinney Est. 1, sec 8, Piedras Pintas area, sd 416 ft. Chas. Kleiner et al's D. Ruiz 1, sec 125, nw Harvey & Henderson well, cored sand & shale streaks 2673-82 ft, coring ahead. Magnolia Pet. Co.'s Duval Ranch 2, sec 100, Piedra Lumbre area, sand 1959-71 ft, completing on pump; Emil Labbe 1, sec 2, Labbe district, dr 100 ft; Duval-Sentz 1, 330 ft sl and el sec 165, 1½ mi nw Charamousca pool, dk. Marzo Oil Co.'s Hagist 1, blk 8, sec 269, 1 mi ne Eagle Hill, elev 460 ft, Gov't Wells sand 2116-21 ft, pump 100 BPD on pump. Plymouth Oil Company's Cuellar 1-A, sec 123, G & M Railway sur, 1 mi s Harvey & Henderson well, dry & abd 3143 ft. Santa Clara Oil Co.'s R. C. Corbett 1, sec 92, GH&H RR sur, ne portion county, dr 3120 ft. Sun Oil Co.'s J. O. Sutherland 1, sec 122, Hoffman area, lcn. Stanolind O&G Co.'s Ira G. Yates 1, sec 416, Labbe area, sd 2948 ft, pb & dr ahead. Texas Co. & Ohio Fuel Oil Co.'s Duval County Ranch Co. 1, sec 96, Piedra Lumbre, lcn. Texla Oil Corp.'s Nueces Land & Live Stock Co. 1, sw ne sec 101, 5 mi nw Eagle Hill, sp.

EDWARD COUNTY—Paul Teas' B. J. Stewart 1, se¼ sec 2, GC&SF sur, lcn for 6000-ft test.

FRIO COUNTY—W. D. Bacon et al's J. E. Burns 1, T. H. Clifton sur, sw Bigfoot, dr 1175 ft. Midland Oil Co.'s Halff & Oppenheimer 1, se¼ sec 11, John Gibson sur, nw Pearsall, dr 1750 ft.

GOLIAD COUNTY—Brown & Wheeler's Kauffman 1-C, blk 14, G. Southerland sur, Hords Creek, sand 4530-46 ft, shale 4546-58 ft, oil sand 4558-66 ft, dk collapsed while running csg, rebldg dk. Keystone Royalties Co.'s C. B. Wood 2, John Shearn sur, 3 mi e Berclair, dr

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4675 ft. Sun Oil Co.'s J. R. Kauffman 1, T. T. Trevino sur, 1 mi ne Hords Creek field, lcn.

GONZALES COUNTY—Forrester Oil Co.'s H. B. Steen 1, N. M. Bane sur, s part of county, sd 150 ft. Inter-Allied Pet. Corp.'s C. M. Wells 1, Tr 3, Sub 1, Jose de la Baume sur, dr 2250 ft. Resource Oil Co.'s Otto Lanbeck 1, J. M. Salinas sur, 3 mi w Gonzales, sp & sd.

GUADALUPE COUNTY—J. E. Clark's J. F. Larison 1, G. Dewitt sur, Ab. 16, 330 ft sw Clark's Lay 1, dr 2470 ft, top chalk approximately 2440 ft. F. N. Gallagher's W. B. Lay 1, J. K. Davis sur, lcn. Jim Harper et al's J. Z. Fulshear 3, Robt. Smith sur, 2 mi nw Prairie Lea, sd 1870 ft. Henadena Oil Co.'s (Sterling & Wilson) R. P. Lowman 1, 2200 ft swl, 950 ft nwl of Tr, G. Allen sur, ¼ mi w of Staples, dr 450 ft. Kniffin & Gallagher's Stagal-Lay 1, Davis & DeWitt sur, dr 2132 ft. Hopkins Bros. et al's F. C. Gabriel 1, 65-ac tr, Geo. Allen sur, within city limits of Staples, completing 785 ft in Austin chalk. R. C. Robbins' Mrs. J. W. Manford 1, James Hodges sur No. 374, 1250 ft e Manford pool, sp. Suttle et al's Baenzinger 1, A. O. Manchola sur, sd 2155 ft.

HIDALGO COUNTY—D. M. C. Oil Co.'s Daskem 1, blk 34, por 45, 4½ mi ne Samfordyce field, sd 4114 ft, to reset at 2400 ft. Gulf States Oil Co.'s Delta Orchards 1, Lot 2, blk 73, Las Mestinas Gr, 1 mi s Mestinas field discovery well, sp. Lensgraf-Walden-Carmen's Brock & Showers 1, Lot 4, blk 12, por 80, Juris of Reynosa, 12 mi nw Mission, sp. S. J. Sloan et al's Brock & Showers 1, Lot 9, blk 16, por 80, Juris of Reynosa, w of Mission, td 6003 ft, ran electric formation test, prep to set csg at 4700 ft, will gun perforate between 4600-4700 ft. Stevens & Mundy's F. B. Guerra 1, Tr. 12, Por 41, 2000 ft n Samfordyce field, elev 188 ft, df, td 3030 ft, set csg 2990 ft prep to rock in. Union Sulphur Co.'s ARGL&I Co. 5, Lot 2082, N. Capisallo district, Llano Grande Gr, td 7529 ft, set csg on bottom, perf 7497-7501 ft, testing; ARGL&I 6, Tr 2358, blk 49, N. Capisallo district, 4500 ft ne of Mercedes field, dr 2150 ft, 10¾-in csg set 1240 ft.

JACKSON COUNTY—Smith & McDonald's Mauritz Bros. 1, 466 ft wl, 394 ft sl 80-ac lease, Cummings sur No. 17 (Pure Oil Co. lease), Mauritz district, dk.

JIM HOGG COUNTY—Macon Pet. Co.'s Y. Gomez 1, sec 1005, dry & abnd 3010 ft. Miller et al's Yeager 1, blk 6, sec 20, sd 3530 ft.

KARNES COUNTY—Mart Pet. Corp.'s Cochran 1, McConnell League, sp & sd.

KENDALL COUNTY—J. E. Freeman's Gerfers 1, Mark Hodgson sur No. 796, sd 102 ft. Southwestern Dev. Synd., Ltd.'s Willie Werner 1, Torrey sur No. 781, Sisterdale area, set csg 685 ft, co td dd.

KERR COUNTY—Auld & Evans' Heffner 1, sec 13, BS&F sur, ru. Jeff Love & Eastland Oil Co.'s Jeff Love 5-E, Martinez sur, sec 1594, ¼ mi se original Love Ranch test, td 5625 ft, move in csg.

KIMBLE COUNTY — Forest Dev. Co.'s Stapp 1, sec 682, ru. Wilcox O&G Co.'s Patterson 1, sec 1, D&P Ry. sur, ab 915, dr 4010 ft.

KLEBERG COUNTY—Harry Clark's W. S. Rogers 1, Lot 1, blk 36, Kleberg sub, sd 750 ft. R. G. Flato, Trustee 1, blk 14, sec 40, KT&I sur, Kingsville area, lcn. Parr & Ponder's Sam Michalk et al 1, lot 5, blk 37, KT&I sur, re-dr 1983 ft.

LA SALLE COUNTY—O. N. Beer & C. L. Witherspoon's La Salle Co. 1, sec 19, near Fowlerton, wor.

LEE COUNTY—Douglas Spivey et al's First Nat'l Bank (T. S. Henderson) 1, Wm. L. Mock sur, lcn.

LIVE OAK COUNTY—Benco Oil Co.'s Eliz Mahoney 1, Mark Killely sur, 3 mi w Three Rivers, sd 78 ft. Earl Callaway et al's W. R. Lyne 1, sec 74, M. M. Lyne sur, ab 763, dr 1800 ft; Moozegemba 1, lot 122, Geo. Est. sub, blk A, ab 113, S. L. Williams sur, lcn. Conway & Buescher's Sanger 1, GC&SF sur No. 383, ab 636, 15 mi sw George West, dr 2050 ft. Houston Oil Co.'s G. Frederick 2, blk 19, Jane Curry sur, lcn temp abnd. Lion Oil & Refining Co.'s Dick Dobie 1, tr in GH&H sur No. 23, s edge of McNeill field, dr 4550 ft. Slick-Urschel Corp.'s Watson & Shipp 1, P. Salinas sur, Fort Merril area, lcn. Smith & Story's Dinero Townsite 2-A, Jane Curry sur, North Lucas area, lcn. J. O. Whittington's Little 3, M. M. Shipp sur, 660 ft sw discovery well, McNeill (north) area, coring 4820 ft.

MAVERICK COUNTY — Thompson & Streeter's Joseph Wipff 1, sec 18, 7 mi w Chittim field, 10 mi n Eagle Pass, sd 220 ft.

McMULLEN COUNTY—Aransas Oil Co.'s M. H. Reed 1, J. A. Spicer sur No. 70, 12 mi sw Tilden, sd 1681 ft. Darby Pet. Corp.'s E. R. Hagist 1-B, 6 mi w Loma Alta field, sp. L. O. Gleason's Fitzpatrick 1, J. A. Loving sur No. 52, sd 1700 ft. Howard & Carpenter's Jungman 1, M. Hely sur, temp abnd 1210 ft. Merzo Oil Co.'s E. R. Hagist 1-A, 330 ft sl & wl sec 6, southern part of county, mir. L. D. Ormsby's Griffith 4, Osborne sur No. 50, temp abnd 122 ft. C. W. Points et al's Fahler 1, Geo. Pittuck sur, 5 mi w Calliham, sd 1004 ft. Stephenson & Wuest's Fisher 1, R. O. O'Boyle sur, nw of Calliham, set csg 502 ft.

MEDINA COUNTY—Frank A. Brown's A. E. Brueks 1, John Ward sur, comp fsh job, now dr 450 ft. Caroco Oil Co.'s (Callahan & Roberts) H. Taylor 2, A. Brushet sur No. 135, 5 mi sw Hondo, sd 380 ft. E. J. Deupree's L. J. Bruecks 1, Henry Castro sur No. 248, dr 710 ft. Eckert & Sons' M. Keller 1, Northington sur No. 8, dry & abnd 1220 ft. Ed Falvey et al's McMenemy 1, sur No. 33½, G. Petty sur, 4 mi se Devine, ru. Gates & Hill's Odom 2, H. Castro sur No. 174, 5 mi sw Hondo, dry & abnd 328 ft; Odom 3, 840 ft wl, 1975 ft sl, sec 174, H. Castro sur, mir. Letro Oil Corp.'s F. B. Forest 1, sec 69, 1½ mi ne Ina field, 1½ mi Adams field, dr 465 ft. Scoggins and Sanders' L. W. Burell 1, M. E. Gage sur, elev 867 ft, dr 1930 ft.

NUECES COUNTY—Bluff Pet. Corp.'s Bluntzer 1, sh 6, Bluntz Lands, Casa Blanca, 10 mi n Banquette, sd 200 ft, account high water. J. K. Culton's H. B. Baldwin et al 1, blk 20, Russell Farm Blocks, 1½ mi w Corpus Christi, dr 1000 ft. Gilcrease Oil Co.'s W. W. Sanders 1, BS&F sur No. 165, ab 55, dr 3650 ft. La Jita Corp.'s Richard King Est. 1, se¼ sec 22, Richard Ranch sub, ne discovery well, King field, td 6008 ft, set 7-in csg 5220 ft, will perf above. Magnolia Pet. Co.'s Bobby Baldwin 2, BS&F sur No. 165, 3000 ft sw discovery, dr 5997 ft; Bobby Baldwin 3, BS&F sur No. 165, sand 3872-82 ft, pump 560 BPD. Richardson & Thomas' Page Bros. 1, Geo. Franks sub, w Saxet field, dr 5340 ft. Santa Clara Oil Co.'s Clara Driscoll Sevier 1, 4456 ft nl, 990 ft el of Wm. Gamble sur, ab 6, 13¼ mi ne Driscoll, lcn. Shell Pet. Corp.'s Ed F. Flato 1, Trs 9 & 10, H. H. Sheppard Farm Lots, coring 6373 ft.

REAL COUNTY—H. J. Heartwell et al's L. J. Haby 2, AB&M sur No. 175, 10 ft sand just below 3220 ft, prep to shoot with 50 qts, and test.

SAN PATRICIO COUNTY—Argo Royalty Co. & Willie Storm's Nancy Hobbs 1, Delgado Gr, 1 mi s Mathis, sd 3520 ft. Benedum & Trees' E. H. Welder 1, sec 34, Welder sub, 2½ mi w of Plymouth field, sp. Conroe Dr. Co.'s E. H. Welder 1-G, sec 47, s end of Plymouth field, dr 4100 ft. Magnolia Petroleum Co.'s Corpus Christi Bank & Trust Co. 2, H. H. Hunter sur, s of Plymouth field, sand 5907-11 ft, comp 8 BPH 18-in ch, tp 800 lbs, cp 700 lbs. Plymouth Oil Co.'s E. H. Welder 17-C, on n line sec 49, Welder sub, north outpost well Plymouth field, setting csg 5518 ft. Sun Oil Co.'s J. M. Hunt 1, (blks 5 & 6) sec 34, Taft Farm Tracts sub, se Plymouth field, dr 3910 ft, sand & sh.

STARR COUNTY—Ash & Tackett's Margo 1, blk 4, sh 3-B, pot 70, no rept. Barnsdall Oil Co. & Phillips Petroleum Corp.'s Yturri Land & Cattle Co. 2, por 100, 660 ft nw of Samfordyce production, lcn. John H. Clopton's Roos & Bennet et al's 2, por 92, dr 2100 ft; Kelsey-Bass 2, 2460 ft w of el por 87, and 17,400 ft n of State Highway 4, sec 10, lcn. Evans & James' Ferry 1, por 77, 2 mi w Rio Grande City, dr 800 ft. McCurry & Yates' Starr County Cattle Co. 1, 510 ft nl of blk 58, J & L sub, por 89, Barbacoas area, lcn. A. Nix et al's Starr County Cattle Co. 1, blk 58, J. L. sub, por 89, Barbacoas area, reinstate, formerly abnd 2817 ft, ran electric formation tester, pb and sdtr 1853 ft, testing 2300-30 ft. Pedernal Oil Co.'s Sarah Welch 2, lot 3, Welch sub, El Pedernal Gr, ru. H. J. Porter et al's Garcia Land & Cattle Co. 1-B, blk 2, por 100, w of Samfordyce field, ru.

TRAVIS COUNTY—G. A. Arts' Rolff 1, Thos. Hancock sur No. 20, ½ mi n Sweden, sd 860 ft. W. O. Caffey's C. C. Nelle 1, G. Gates sur, sp. C. B. Collard's I. Blomberg 1, Windburn sur, sd 660 ft. J. E. Robertson et al's I. F. Smith 1, L. Kimbro sur, temp abnd 715 ft; I. F. Smith 2, 150 ft nel, 300 ft nwl, 113-ac tr, L. Kimbro sur, dr 680 ft.

VICTORIA COUNTY—Barnsdall Oil Co. & Felmont Oil Corp.'s J. M. Pickering 1, S. A. & M. G. sur, ab 305, Placedo area, completing 4771-81 ft; W. R. Smith 1, A. Murray sur, s of Placedo field, ru. E. L. Smith Oil Co. & Gulf Prod. Co.'s S. E. Wright 1, J. M. Bronson sur No. 8, Placedo area, completing 4750 ft. Sun Oil Co.'s J. J. Marek 2, SA&MG Ry. sur No. 9, Placedo area, set sur csg. The Texas Co. et al's J. J. Warden 1, Edward McDonough League, 12 mi s Victoria, td 5629 ft, comp in sand 4488-96 ft in sdtr hole, made gasser, TP 1800 lbs, CP 1840 lbs.

WEBB COUNTY—D. E. C. Oil Co.'s Slator Ranch 1, blk 29, Mission Oil Company sub, Slator Ranch, J. S. Borrego Gr, sd 375 ft. French Oil Corp.'s Juan Guerra 1, blk 14, se sec 334, 3 mi ne Oilton, sp. O. W. Killam's A. M. Bruni 40, blk 32, sec 10, Foltz sub, Mariana Arispe Gr, dry & abnd 3607; Ortiz Ranch, por 17, 6 mi nw Laredo sp & set sur csg. C. H. Lewis et al's E. Lopez 1, sur 110, 2 mi s of Lopez field, dr 1650 ft. Magnolia Pet. Co.'s Volpe Bros. 1, sec 485, n of Carolina-Texas field, dr 1035 ft. R. E. Misner's Garcia 1, se¼ sec 457, dr 1950 ft. South Texas Oil Co.'s Laurel 2, 330 ft sl & 450 ft el blk 1, sur No. 269, Laurel area, dk. W. H. Vernor Tr's Jeffries Ranch 1, blk 13, sec 1453, 30 mi nw Laredo, sd 40 ft. A. H. Wray's Geo. Steumpke 1, sh 1, Brewster Pasture, Joaquin Galan Grant, coring 1454 ft.

WILLACY COUNTY—King-Woods Oil Co.'s Stillman Ranch 1, lot 16, blk 30, sh 44, Stillman Ranch sur, San Juan Carricitos Gr, sd td 6516 ft. L & S Dr. Co. & South Texas Dev. Co.'s Armendiez 1-A, Little Share 4, sd 5300 ft.

WILLIAMSON COUNTY—Fuch & Walter's F. Ollman 1, Bevil sur No. 56, dry & aband 875 ft. Glass Bros.' A. Albert 1, P. Coursey sur, sd 785 ft. Hays Gee's Coupland State Bank 1, 3000 ft nl, 150 ft el of tr, W. Lancey sur, w of Coupland, lcn. Rule et al's Bochmeyer (Rummell) P. Cartwright's sur, sd 800 ft. G. A. Ripley's A. Muery 1, 150 ft nl of 55-ac tr and 1100 ft e of J. P. Wyeke sur, near Coupland, lcn.

ZAPATA COUNTY—H. F. Crow's B. Uribe 1, blk 35, sub of sh 11, por 4 & 5, San Ignacio sub, J. V. Borrego Gr, dk; Yzaguirre 1, sh 17, por 15, Lopena area, sd 415 ft, may set csg. Humble O&R Co.'s E. Dominguez 1, por 31, dr 5650 ft. J. J. O'Hern et al's S. Vela 1, blk 2, por 27, 7 mi ne of Charco Redondo field, dr 510 ft. Joe Palmer's Emma Markrud 1, blk 22, sec 616, sd 1270 ft. SR&C Oil Corp.'s Trevino 15-A, blk 8, sec 66, Escobas field, deep test, dr 2580 ft.

WEST TEXAS

ANDREWS COUNTY—Fuhrman Pet. Corp.'s W. T. Ford 2, se¼, sec 16, blk A-43, PSL sur, flowed 608 bbls oil and 3,000,000 ft gas after shot, td 4481 ft, completed; W. T. Ford 3, near c se¼ sec 16, blk A-43, PSL sur, rig. Gulf's J. S. Kelly 1, swc sec 10, blk A-38, PSL sur, elev 3409 ft, top anhydrite 1697 ft, dry and abd 1760 ft. Humble's J. S. Means 4, c se ne sec 12, blk A-35, PSL sur, elev 3157 ft, top anhydrite 1865 ft, top salt 1915 ft, pb fr sul w at 4540-55 ft to 4542 ft, tested 25 bbls oil daily, plus 40% water; R. M. Means 6, nwc sec 4, blk C-45, PSL sur, elev 3179 ft, top anhydrite 1880 ft, top salt 1938 ft, dr 2600 ft. Shell's J. S. Means 1, c sw se sec 2, blk A-35, PSL sur, elev 3166 ft, td 4536 ft, used 4000 gals acid and flowed 269 bbls daily, complete pumped 720 bbls oil. Lou Stogner et al's C. C. George-TP Coal & Oil Co. 1, c se se sec 25, blk A-22, PSL sur, elev 3253 ft, top anhydrite 1853 ft, salt series 1930-2775 ft, top Yates sand 2930 ft, so&g 4230-50 ft, sdo 4560 ft. Sun Oil Co.'s J. S. Means 1, c ne se sec 8, blk A-35, PSL sur, elev 3170 ft, top anhydrite 1890 ft, top salt 1942 ft, lime pay 4330-4545 ft, shot 500 qts nitro 4335-4545 ft, completed i. p. 803 bbls via cas; S. B. Gowens 1, c ne ne sec 15, blk A-43, PSL sur, lcn abd. J. W. Tripplehorn et al's C. E. Ogden-Humble 1, sec sw¼ sec 6, blk A-46, PSL sur, elev 3211 ft, pb fr 4440 ft to lime pay 4395-4402 ft, completed flows 562 bbls. Wahlenmaier Pet. Corp.'s R. A. Cox-Humble 1, c nw¼ sec 8, blk A-33, PSL sur, elev 3277 ft, top anhydrite 1955 ft, top salt 2000 ft, dr 3680 ft.

BREWSTER COUNTY—Floyd C. Dodson et al's Texas American Synd 1, c ne ne sec 66, blk 10 H&GN Ry. sur, deep test, fsh 1715 ft. K. H. King & C. R. Franklin's A. S. Gage 1, nw¼ sec 138, blk B-22, GH&SA Ry. sur, sd 1405 ft. G. H. Storey et al's Jim P. Wilson 1, c se new sec 3, blk 212, T&StL Ry. sur, sd 1875 ft.

COCHRAN COUNTY—Humble's C. C. Slaughter 1, League 135, Armstrong Co. S. L. sur, dr anhydrite 2886 ft.

COKE COUNTY—C. D. Hagerty et al's S. W. Gaston 1, Jos. Young sur No. 11, elev 2022 ft, dr 3260 ft.

CONCHO COUNTY—Maverick Oil Co.'s Jim Rice 1, sec 18, H&TC Ry. sur, elev 1887 ft, sd 150 ft. John W. Westbrook Co.'s C. C. Ledbetter 1, blk 65, H&TC Ry. sur, elev 2000 ft, dr 520 ft.

CRANE COUNTY—American-Liberty Oil Co. et al's J. B. Tubb-Humble 1, swc sec 11, blk B-27, PSL sur, elev 2536 ft, top Yates 1470 ft, top lime 2400 ft, shot 90 qts nitro 4288-4307 ft, td 4314 ft, completed flows 25 bbls daily. Dobbs Oil Co.'s Jax Cowden 1 (1120-ac), sec n½ sec 38, 1, H&TC Ry. sur, elev 2330 ft, salt series 650-950 ft, top lime 1850 ft, so&g 2302-05 ft, hfw 2324-43 ft, dry and abd; Jax Cowden 2, lcn. B. H. Fleet et al's R. S. Pershing-The Texas Co. 1, lcn. Gulf's W. N. Waddell et al 1, c nw nw sec 4, blk B-27, PSL sur, Ordovician test, elev 2554 ft, top salt 510 ft, dry on dst at 5820-6075 ft, cor in Ordovician lime 6115 ft; M. B. McKnight 1, c sw sw sec 9, blk B-21, PSL sur, elev 2679 ft, top salt 615 ft, top lime 2530 ft, pb fr 3713 ft to 3649 ft, shot twice, complete, pumps 20 bbls oil and 70 bbls water. W. L. Holloway et al's J. B. Mayberry-The Texas Co. 1, near c sec 17, blk 35, H&TC Ry. sur, elev 2334 ft, dry and abd hfw 2098-2104 ft. John I. Moore et al's T. C. Barnsley 1, sec 42, blk 32, PSL sur, lcn

CROCKETT COUNTY—Chas. & Grant Adkins et al's Shannon-Atlantic 1, swc n½ sw¼ sec 27, blk "WX", GC&SF Ry. sur lcn. E. C. Leslie & Hiller's J. S. Todd 1, sec ne ne sec 26, blk "WX", GC&SF Ry. sur, sd 735 ft. John I. Moore et al's A. C. Hoover 1, sec sec 4, blk "FF", B&B sur, sp and sd.

CULBERSON COUNTY — Anderson-Prichard Prod. Corp.'s H. A. Borders 1, nw¼ sec 34, blk 249, GB&CNG Ry. sur, elev 4565 ft, dr 1895

ft. Miller et al's fee 1, sec 21, blk 97, PSL sur, temp abd 2137 ft.

JEFF DAVIS COUNTY—C. M. "Dad" Joiner et al's Jones-Coffield 1, ne¼ sec 8, blk 3, H&TC Ry. sur, sd 1610 ft.

ECTOR COUNTY—Conoco's L. E. Wight 1, nec sw¼ sec 21, blk 43, T&P Ry. sur, T-1-S, elev 3037 ft, so&g 4100-07 ft, dr 4258 ft. W. H. Dunning et al's C. Scharbauer 1, sec sw¼ sec 33, T&P Ry. sur, blk 44, T-1-N, elev 3159 ft, dr 930 ft. Gulf's C. A. Goldsmith-Scharbauer 2, sec ne¼ sec 15, blk 44, T-1-S, dr 3220 ft; Goldsmith-Scharbauer 3, sec sec 22, blk 44, T-1-S, dr 2325 ft. Sun Oil Co.'s W. P. Edwards 1, nec sec 20, blk 43, T&P Ry. sur, T-3-S, elev 3029 ft, dr 1258 ft. Sun & Atlantic O. P. Co.'s O. B. Holt 1, c nw sw sec 6, blk 43, T&P Ry. sur, T-1-N, elev 3136 ft, dr 2990 ft. Westbrook Oil Corp.'s T. B. Yarbrough-Gulf 1, nwc sec 26, blk B-14, PSL sur, elev 2824 ft, top brown lime 3430 ft, sdo 4004 ft. York & Harper, Inc.-Barnsdall Oil Co.'s E. F. Foster 1, c se se sec 13, blk 43, T-2-S, T&P Ry. sur, dr 700 ft.

EL PASO COUNTY—A. M. Blume et al's F. W. Cook 1, ne½ sec 321, S. F. No. 8134, sd 560 ft. Tri-State Oil Co.'s Chas. & L. M. Kinkel 1, nec sec 237, S. F. No. 7232, sd 1240 ft.

FISHER COUNTY—L. A. Daniel & J. B. Rhoads' Mrs. J. R. Nickless 1, nwc 81-acre lse, G. W. Lawrence sur, sp and sd. Tide Water and Merry Bros. & Perini, Inc.'s M. Howard 2, nec sw ne sec 180, blk 2, H&TC sur, elev 1853 ft, dr 1800 ft; H. Newman 1, ne¼ sec 2½, John Rodman sur, elev 1997 ft, dr 2480 ft.

GAINES COUNTY—E. M. Wahlenmaier, York & Harper's E. H. Jones-Humble 1, c sw sw sec 414, blk "G", CCSD & RGNG sur, sp. W. T. Walsh & Harry Adams Corp.'s S. J. Averitt 1, nec ne ne sec 228, blk "G", W.T. Ry. sur. 2 mi nw Seminole, lcn.

GARZA COUNTY—Dobbs Oil Co.'s W. E. Connell 1, swc nw¼ sec 75, blk 5, GH&H Ry. sur, elev 2414 ft, top lime 2025 ft, sd repairs, td 2405 ft.

GLASSCOCK COUNTY—John I. Moore, Loffland Bros. et al's L. S. McDowell 1, c se ne sec 22, blk 34, T&P sur, T-2-S, elev 2534 ft, top lime 2137 ft, top Crinoidal lime 9471 ft, used acid, td 10,115 ft, temp abd. John I. Moore et al's Mrs. Erie Miller 1, c se se sec 35, blk 34, T&P Ry. sur, T-5-S, elev 2724 ft, top lime 2473 ft, dr 2510 ft. Oyster & Rhodes' M. F. Read 1, nw¼ sec 31, blk 35, T&P Ry. sur, T-5-S, lcn.

TOM GREEN COUNTY—Twin Oil Co.'s W. E. Green 1, Levi P. Moore sur No. 169½, sd 325 ft. Spinner Oil Co. (was Adkins Bros.') Bennett Reed 1, blk 39, Mayson-Perry sur, dr 590 ft. Eugene Mays et al's Ike Funk 1, c nw sw sec 38, blk 5 H&TC sur, machine.

HAMILTON COUNTY—T. K. O'Neal et al (was Ireland O&G Co.'s) Geo. L. Doyle 1, Isaac Adams sur, elev 1055 ft, top Caddo lime 3050 ft, so&g 3368-95 ft, dr hard black lime 3480 ft.

HOWARD COUNTY—TP Coal & Oil Co.'s E. W. Douthitt 1, sec sw¼ sec 116, blk 29, W&NW sur, rig.

JONES COUNTY—Bridwell Oil Co.-Leland Fikes (was R. B. Farris & Fikes') J. W. Jennings 2, se¼ sec 207, Orphan Asylum Land-BBB&C Ry. sur, top sand 2048 to 2055 ft, filled 500 ft OIH in 20 min; Jennings 3, sd 367 ft. Anderson-Kerr Pet. Co.'s J. W. Jennings 1, nwcs½ se¼ sec 1, blk 1, BBB&C Ry. sur, swedging cas 1688 ft. W. D. Conway et al's Lee Cauthen 1, swc 80-ac lse, sec 24, H&TB Ry. sur, dr 1400 ft. John M. Cooper et al's W. E. Robinson 1, c se se blk 8, L. Matthews sur No. 7, lcn. Tip DeArman et al's J. H. Huflaker 1, swc se¼ sec 25, D&D sur, dr 1920 ft. Guiberson & Humphrey's J. W. Jennings 1, nec n½ nw¼ sec 207, BBB&C Ry. sur, machine; W. G. Swenson 1. lcn. Herrington & Hodges' Mrs. C. T. Cowsert 1, nwc sec 42, Orphan Asylum Land sur, lcn. Harry Hines et al's A. M. McNair 1, swc lot 3, sec 5, Mary Lawson sur, lcn. Tom B. Medders et al's J. E. Manley 1 near c se¼ sec 35, blk 14, T&P Ry. sur, dr 990 ft. Reliance Oil & Roy. Co.'s Ida Crow 1, se¼ sec 9, D&D sur, lcn. F. E. Shaheen Oil Co.'s P. O. Sandlin 1, c sub-div 8, L. Matthews sur, elev 1537.2 ft, dd fr 1929 ft. Ungren & Frazier's J. W. Jennings 1, ne¼ sec 207, Orphan Asylum Land-BBB&C Ry. sur, oil sand 2043½-2045 ft, swabbed 140 bbls oil 3½ hrs.

LOVING COUNTY—Mason Oil Co.'s M. Kyle 1, s nw se sec 22, blk 55, T&P sur, Tsp 1, elev 3001 ft, top salt 1585 ft, fsh 2960 ft. Porter Rankin et al's W. D. Johnson 1, nw¼ sec 12, blk 57, T&P sur, Tsp 1, sd 2480 ft.

LYNN COUNTY—E. T. Hart & Wanete Oil Co.'s C. O. Edwards 1-A, se¼ sec 29, blk 1, L&SV Ry. sur, elev 3112 ft, dry and abd 5005 ft.

MARTIN COUNTY—Wm. Hix et al's O. B. Holt 1 (5000-ac), League 319, Garza County S. L. sur, lcn.

MITCHELL COUNTY—Lockhart & Co.'s W. C. Berry 1, nec nw¼ sec 80, blk 97, H&TC Ry. sur, elev 2232 ft, dr 1385 ft.

NOLAN COUNTY—N. B. Hall & A. Glenn's Georgia Tech 1, sw¼ sec 89, blk 24, T&P Ry. sur, elev 2330 ft, sp and sd.

PECOS COUNTY—Gulf's White-Baker 7, nec sec 15, blk "Z", T.C. Ry. sur, top salt 775 ft, dr 885 ft. C. W. Richards et al's W. Courtney-Pryor 4, c nw nw sec 78, blk "OW", T.M. Ry. sur, dr 785 ft. Shamrock O&G Co.-Phillips Pet. Co.'s J. L. Nutt 1, sec 12, blk 125, T&St L Ry sur, lcn. Tex-Mex Pet. Corp.'s E. T. Brandenburg 1, sec n½ sec 42, blk 8, H&GN sur, dr 560 ft. Trans-Texas Oil Co.'s C. M. Caldwell 1, sec sec 27, blk 50, T&P Ry. sur, Tsp 9, so&g 3075 ft, sd 3802 ft.

REAGAN COUNTY—Culbertson & Irwin's R. E. Wingo 1, c sw sec 1, blk "H", L&SV Ry. sur, elev 2657 ft, top salt 1245 ft, dry and abd in hfw (sul) 3404-30 ft. Plymouth Oil Co.'s E. T. Kirchner-White (Belcher) sw¼ sec 1231 GC&SF Ry. sur, elev 2644 ft, top lime 3115 ft, dry and abd hfw (sul) 3365-70 ft. Dobbs Oil Co.'s W. E. Friend 2, nw sw sec 3, Wm. Allen sur, lcn. Sun Oil Co.'s L. Wilson Young 1, swc ne¼ sec 1, GC & SF Ry. sur A-170, elev 2677 ft, top salt 1140 ft, dr 2080 ft.

REEVES COUNTY—R. W. Clark and Washington Oil Co's Radford 1, sec 39, blk 56, PSL sur, elev 3169 ft, sd 502 ft. Grisham-Hunter Corp.'s T. P. Land Trust Co. 1, c sw¼ sec 27, blk 57, T&P Ry. sur, tsp 2, elev 3020 ft, top anhydrite 350 ft, fsh 1360 ft. Herbert Oil Co's E. M. Williams 1, sec 17, blk 6, H&GN Ry. sur, elev 2536 ft, top black lime 4880 ft, top Delaware sand 4920 ft, so&g 4885-4900 ft, td 5004 ft, shot 141 qts nitro 4875-4936 ft, tested so&w, pb to 4950 ft, redrilled in new hole and logged so&g 4982-88 ft, bailed oil and water, dry and abd. Kenneth Slack & L. M. White's Francis Reeves 1, c se nw sec 20, blk 56, PSL sur, elev 3220 ft, so&g 2944-58 ft, top black lime 3126 ft, sd 3166 ft.

RUNNELS COUNTY—John Castor et al's H. Giesecke 1 (1925-ac), nec blk 130, J. Hughes sur No. 227, rig. Grover Hart, J. D. B. Baker & J. S. Dennis' G. W. Ash 1, nec w½ sec 123, E. T. Ry. sur, sp and sd.

SCHLEICHER COUNTY—J. M. Cooper et al's Bert Page 1, near c nw¼ sec 40, blk L, GH&SA sur, elev 2270 ft, pb from sul w 6257 ft to 5560 ft, used 3000 gals acid, increased gas to 10,000,000 ft daily. W. C. Proctor, J. D. Wesner et al's Judkins-Spencer (Pure) 1-A, c sw¼ sec 4, GC&SF sur blk "V-28," or Hooper-Wade sur, blk "A," ur 2205 ft. Steve D. Hunter et al's J. A. Whitten 1, nec sec 34, blk "LL," lcn.

SCURRY COUNTY—Coffield & Guthrie, Inc's W. A. Wade 1, nwc sec 115, blk 97, H&TC sur, elev 2306 ft, so&g 1745-75 ft, dr 1880 ft. Magnolia's W. M. Scott 1, swc sec 186, blk 3, H&GN sur, elev 2341 ft, top lime 1295 ft, dr 2755 ft.

TAYLOR COUNTY—Brown Eagle Oil Co.'s C. M. Caldwell 1, mim. Harry Imholtz et al's E. E. Aadler 1, C. Cole sur No. 51, mim. H. Crissman et al's Abilene fee 1, near c se¼ sec 66, B. A. L. sur, abd 1750 ft. Hickock Prod. & Dev. Co.'s C. R. Tittle 1, nwc sec 37, blk 19, T&P sur, lime 2520-22 ft, dr 2665 ft. Skaggs & Brewer's McClure-Young 1, nec s½ sw¼ sec 8, L. A. L. sur, used 3000 gals acid in lime 1865-1910 ft, testing.

TERRELL COUNTY—F. C. Bates & J. H. Felps' J. H. Felps 1, sec nw¼ sec 5, G. W. Turley sur, blk A-4, elev 2185 ft, sd 5606 ft. H. L. Manley et al's J. M. Bassett 1, c sec 45, blk A-2, GH&SA Ry. sur, lcn.

UPTON COUNTY—Humble's L. W. Pollock-Gulf 1, c sw¼ sec 4, blk "M," E. L. & Ry. sur, Ordovician test, top salt 1670 ft, top Yates sand 2560 ft, cem 8⅝-in cas 8728 ft, dr lime and shale 10,197 ft. J. G. McKenzie et al's W. H. & L. M. Taylor 1, sec ne se sec 22, blk B-2, GC&SF sur, sd 630 ft.

WINKLER COUNTY—Cree & Hoover's J. A. Crow 1, nwc sw¼ sec 14, blk B-5, PSL sur, dr 1650 ft. Emperor Oil Co.'s S. M. Halley 1, sec n½ se¼ sec 12, blk B-12, PSL sur, elev 2764 ft, top anhydrite 915 ft, top salt 1260 ft, top lime 2442 ft, flows 50 bbls oil daily, td 2886 ft. Crafton Oil Co., W. A. Moncrief & Showers' J. B. Walton-Pure 1, se¼ sec 2, blk B-3, PSL sur, Keystone area, mim; Walton-Pure 2, swc ne¼ sec 1, blk B-3, lcn. Gulf's Keystone 2, nwc sec 17, blk B-2, elev 2941 ft, top anhydrite 892 ft, top lime 2240 ft, top O'Brien lime 2440 ft, td 3702 ft, shot 500 qts nitro 3200-3620 ft, used 3000 gals acid, then reshot with 320 qts nitro 3200-3702 ft, completed, flows 166 bbls net oil (37.4 gravity) and 1,470,000 ft gas daily via tubing; Keystone 3, nwc ne¼ sec 11, blk B-3, elev 2939 ft, top anhydrite 830 ft, sd to pb fr sul w, td 3765 ft; Keystone 4, nec sec 20, blk B-3, elev 2937 ft, top anhydrite 857 ft, shot 695 qts nitro 3430-3756 ft, pb fr sul w at 3756 ft to 3375 ft, testing; Keystone 5, nwc sw¼ sec 6, blk B-2, elev 2952 ft, top anhydrite 803 ft, top lime 2090 ft, top O'Brien lime 2240 ft, pb fr sul w, td 3785 ft to 3650 ft and shot with 435 qts nitro 3450-3650 ft, complete, flowed 1213 bbls oil and 142 bbls water with 18,100,000 ft gas; Keystone 6, nwc ne¼ sec 16, blk B-2, elev 2950 ft, top anhydrite 920 ft, shot 770 qts nitro 3276-3676 ft, flows 86 bbls oil plus water via tubing; Keystone 7, nwc sw¼ sec 14, blk B-2, elev 2954 ft, top anhydrite 880 ft, top salt 1080 ft, shot 555 qts nitro at 3240-3652 ft, flows in pit, co 3652 ft; Keystone 8, swc sec 13, blk B-2, elev 2964 ft, top anhydrite 970 ft, shot 870 qts nitro 3350-3865 ft, cored oil saturated lime 4443-58 ft, td 4463 ft, tested dry; Keystone 9, swc sec 18, blk B-2, elev 2946 ft, top anhydrite 1060 ft, sd to rust, td 4126 ft. K. D. Oil Co.'s Pink Mitchell 1, nwc s½ ne¼ sec 23, blk B-10, PSL sur, dk. Mascho Oil Co.'s R. M. Evans 1, near sec nw nw sec 46, blk 73, PSL sur, sd 217 ft; Cowden Cattle Co. 1, c nw¼ sec 8, blk A-56, PSL sur, lcn. Sid Richardson et al's J. B. Walton-Pure 2, sec sw¼ sec 1, blk B-3, PSL sur, elev 2954 ft, top lime 2190 ft, dr 3275 ft; B. F. Jenkins-Humble 1, sec sec 13, blk 77, PSL sur, elev 2963 ft, est 20,000,000 ft dry gas 3067-75 ft, killed to dd. Siosi Oil Co.'s J. C. Lovett 1, nec sec 36, blk B-26, PSL sur, testing big gas flow, td 3130 ft. Skelly Oil Co.'s J. M. Halley 3, near c of s line ne¼ sec 25, blk B-11, PSL sur, elev 2732 ft, pb fr 3855 to 3319 ft, fsh; Halley 4, near sec ne nw sec 25, elev 2732 ft, shot 440 qts nitro 2850-3150 ft, flowed 158 bbls oil 22 hrs, complete; Halley 5, nec nw¼ sec 25, lcn. Sun Oil Co.'s S. M. Halley 2, sec sec 24, blk B-12, PSL sur, lcn; J. A. Crow 1, swc s½ sec 23, blk B-5, PSL sur, rig; J. B. Walton 1, nec s½ sec 8, blk

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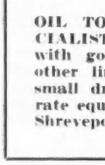

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B-3, PSL sur, dr 810 ft. J. M. Weaver and Hoffman-Page Co.'s Tobe Morton-Humble 1, sec n½ sec 11, blk B-12, PSL sur, elev 2767 ft, base salt 2471 ft, top lime 2490 ft, pb fr sw at 2945-48 ft to 2937 ft, completed, flows 80 bbls daily. Westbrook Oil Corp.'s E. E. Brown-Gulf 1, swc ne¼ sec 5, blk B-5, PSL sur, Kermit area, elev 2843 ft, dr 2530 ft. Wilgo Oil Co.-Thurman & Southern's Seth Campbell 1-A, swc se sw sec 18, blk B-3, PSL sur, 1120 ft.

YOAKUM COUNTY—Honolulu Oil Corp.-C. J. "Red" Davidson's L. P. Bennett 1, c ne ne sec 678, blk "D," John H. Gibson sur, elev 3557 ft, top anhydrite 2424 ft, top salt 2535 ft, top Yates sand 3220 ft, filled 800 ft oih (31½ gravity) from dolomite lime 5088-90 ft, sd for cas.

WYOMING

BIG HORN COUNTY—J. W. Bales' Parker 1, csw sw 23-49n-89w, dr at 500 ft. J. H. Shafer's 1, sw sw sw 8-49n-91w, dr at 1250 ft with 6⅝-in csg at 1180 ft.

CARBON COUNTY—General Pet. Corp. of Calif.'s Whitford 1, sw se ne 24-20n-84w, dr at 5396 ft. Shirley-Wyoming Oil Co.'s Quealy 1, nw nw ne 21-26n-80w, dr at 439 ft.

CONVERSE COUNTY — Chadron-Osage Oil Co.'s State 1, cne 16-32n-69w, sd at 1400 ft. John Ackard's Daniels 1, sw sw se 17-32n-71w, sd at 3000 ft.

CROOK COUNTY—M. D. Miller's Kinter 1, n ne se 13-52n-62w, drv and abd at 1430 ft.

NIOBRARA COUNTY—Riggs Oil Co.'s A. A. Spaugh 1, nw nw nw 4-33n-65w, still fsg for bit at 1320 ft.

PARK COUNTY—Geo. T. Beck's 1, nw se nw 27-53n-101w, dr at 1420 ft.

SHERIDAN COUNTY—Sheridan Syndicate's Allison 1-A, sw sw se 15-55n-85w, dr at 2775 ft.

WASHAKIE COUNTY—Wyoming Oil & Refining Co.'s Frison 1, nw sw nw 14-48n-91w, dr at 1700 ft.

Catalogs... Bulletins

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Vibrating Screens

Allis-Chalmers Manufacturing Company, Milwaukee, has ready for distribution Bulletin No. 1474-A, which describes the company's line of "Aero-Vibe" screens.

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STATEMENT OF OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933.

Of The OIL WEEKLY, published weekly at Houston, Texas, for October, 1935.

State of Texas, County of Harris, ss:

Before me, a Notary Public in and for the State and county aforesaid, personally appeared A. L. Burns, who having been duly sworn according to law, deposes and says that he is the Business Manager of The OIL WEEKLY, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher: R. L. Dudley, 3238 Huntington Drive, Houston, Texas.

Editorial Director: S. W. Robinson, 5002 Scotland, Houston, Texas.

Editor: Warren L. Baker, 1126 Crocker St., Houston, Texas.

Managing Editor: J. Kent Ridley, 1018 Isabella, Houston, Texas.

Business Manager: A. L. Burns, 4311 San Jacinto, Houston, Texas

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state).

None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

A. L. BURNS, Business Manager.

Sworn to and subscribed before me this 27th day of September, 1935.

(Seal) J. KENT RIDLEY.

(My commission expires June 1, 1937.)

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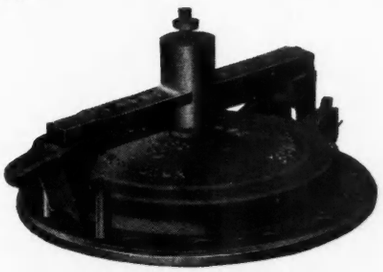
HATCH LATCH
Enardo Manufacturing Company

Enardo Manufacturing Company, Tulsa, has announced a "step-on" spring bail which serves as an automatic latch in connection with the full line of thief-hatches made by the company. Hatches are furnished with or without bail. Eight models of hatches are offered in all-aluminum and eight in gray iron. The models include a round hatch and a long hatch, both made in the two-inch base and the 10-inch base, and both with and without the automatic latch "step on" spring bail.



Enardo Hatch Latch

A felt backed, gasoline and oil proof cork fibre gasket is used on all models and is so arranged that ice and dirt will not gather on it, thus preventing its proper function. The eight all-aluminum models will not spark when struck by metal and form a safety precaution against the hazard of fire. Also the tall 10-inch model eliminates the necessity of installing an iron collar on water-seal tanks.

The thief-hatch opening on the round model is eight inches in diameter and the long model is 7¾ by 17½ inches. Special interest has been manifested in the models with the "step-on" spring bail, the manufacturer claims. It eliminates much of the danger of getting the head too close to the opening and breathing fumes from the tank. When the lid is flipped over it latches in an automatic fashion. It may also be opened by the foot.

FLASHING FLARE
Economy Electric Lantern Company

Economy Electric Lantern Company has announced a new safety flare which the manufacturer claims is the answer to the problem of adequate flare protection during breakdowns at night. This new flare with a brilliant, intermittent red flash, visible 880 yards, makes its debut at a time when safety is a major objective. Many states now are planning, or have already in effect, legislation dealing directly with flare requirements. In most others, the subject is being strongly advocated for immediate introduction.

This new flashing signal is operated by a proven electro-magnet flashing contact in the bulb itself and not by a thermostat. There are no fragile parts to get out of order, it is claimed. One feature of

Economy Flashing Flare

major importance is the lamp's ability to operate to great advantage in all types of weather, rain, snow or the strongest wind having no effect on its ability to function properly.

It is of special importance where carriers of inflammables and food stuffs are concerned, as there is no fire hazard or odor, thus insuring cargo safety.

Cadmium plated and seamless drawn, the flare is of the same high standard of quality as are the other products of the company. It is ready for use instantly by the flick of a switch. Its pivot base permits tilting so that the signal can be directed at approaching traffic, whether on a hill, in a valley or around a curve. In factory tests, the lamp has proved its reliability by burning over 50 continuous hours and the battery life is well over 25 continuous hours. Another feature is the thief-proof bracket holder with a locking clip. The lamp snaps into place, the bracket is locked and the flare is handy, ready to be used in any forthcoming emergency.

Geological Bulletin

Various districts of the United States are represented among the papers in the September, 1935, issue of the Bulletin of the American Association of Petroleum Geologists.

The Texas Gulf Coast is represented with two papers and a discussion. Michel T. Halbouty is author of a paper on the geology and geophysics of the southeast flank of Jennings dome, Acadia Parish, Louisiana, with special reference to overhang. Selwyn O. Burford discusses the structural features of the Brenham salt dome, Washington and Austin Counties. L. P. Teas gives a short discussion of the new Hardin field, Liberty County, Texas.

The aerial geology of the Eocene in Northeastern Mexico is discussed in a paper by William G. Kane and Guy B. Gierhart. J. Harlan Johnson discusses the stratigraphy of Northeastern and East-Central parts of South Park, Colorado.

A paper by Raymond C. Moore deals with the late Paleozoic crustal movements of Europe and North America.

American Manufacturing Opens New Kilgore Warehouse

A new warehouse at Kilgore, Texas, has been opened by American Manufacturing Company of Fort Worth, manufacturers of oil field equipment. The warehouse is in charge of J. E. McKinnie and is to provide more adequate facilities for the sale and distribution of American equipment in the East Texas field.

ASHTON HYDRAULIC GAUGE

Pressure Range: 0 to 250, 500, 1000, 2000, 3000, 5000 and 10,000-pound.

The Chrome Vanadium Steel pressure element or spring is carefully bored, turned and formed, heat treated and tempered and processed to prevent corrosion.

Immediate delivery from our complete Houston stocks

MAINTENANCE ENGINEERING CORP.

1400 Conti St. P-6338 L.D. 409
HOUSTON • TEXAS

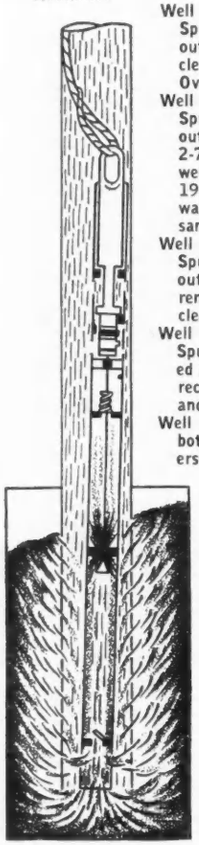
Spud Type Bailers are OBSOLETE for Cleaning Out

Use The

CAVINS

for Speed & Economy

The CAVINS ordinarily will have a well cleaned out in less time than it takes to rig up a string of tools or get other methods in operation. No spudding. No rigging up. It operates at high speed and recovers about 15 feet of sand in the tool on each run. Here are a few typical examples of CAVINS performance:



Well No. 1: (215-ft. of sand). Spudding type bailer cleaned out 15-ft. in 32 hrs. CAVINS cleaned out 200-ft. in 48 hrs. Over 9 times faster.

Well No. 6: (257-ft. of sand). Spudding type bailer cleaned out 62-ft. in 56 hrs. CAVINS 2-7/8" o.d. Bailer cleaned well to bottom, recovering 195-ft. in 24 hrs. ALSO washed perforations at the same time.

Well No. 4: (60-ft. of sand). Spudding type bailer cleaned out 25-ft. in 16 hrs. CAVINS removed 35-ft. in 6 hrs., and cleaned well to bottom.

Well No. 8: (745-ft. of sand). Spudding type bailer recovered 115-ft. in 56 hrs. CAVINS recovered 630-ft. in 88 hrs., and cleaned well to bottom.

Well No. 2: (Never cleaned to bottom). Spudding type bailers always stopped 243-ft. from bottom. CAVINS cleaned out the bottom 243-ft., and production increased 40 bbls.

Well No. 10: (Bad pipe at 4,275-ft.) Spudding type bailers always stopped at that point. CAVINS cleaned out 119-ft. past bad pipe to bottom (4,394-ft.)

There are natural and scientific reasons why the CAVINS is the easiest, fastest, cheapest and best way to clean out your wells. Write for detailed information and performance records.

THE CAVINS COMPANY

Cable Address: "Cavins, Long Beach."
Foreign Representative: R. J. Eiche.

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Santa Paula, Calif. . . . . Phone 234
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Kilgore, Texas . . . . . Phone 753
Pampa, Texas . . . . . Phone 1220
Oklahoma City, Okla. . . . . Phone 3-6441
Wichita, Kansas . . . . . Phone 45-449
Lyons, Kansas . . . . . Phone 227

This Week with the Industry's EQUIPMENT SUPPLIERS

Tulsa Exposition Space Sale Nearing Completion

Contracts for 86 percent of the exhibit space for the ninth International Petroleum Exposition at Tulsa May 16 to 23, 1936, have been signed announces W. B. Way, general manager.

"Outside exhibit blocks are 92 percent sold and booths in the five large exhibit buildings are 81 percent sold," said the general manager who predicts that all space will be contracted for by December 1.

"Every booth in the Oklahoma and Texas buildings is sold and between 60 to 70 percent of the space in the Scientific and Technical and Refiners and Marketers buildings is taken. Space on the main street of the grounds, called Drake Drive, is completely sold. Exhibitors have indicated that they will display much heavy drilling equipment and at least three outfits will be making hole on the grounds during the exposition."

W. G. Skelly, president of the exposition, said that the sale of space is an indication that manufacturers and marketers have made many improvements since the last show in 1934 and that conditions in the oil industry are improving.

Frank F. Chiles Joins Republic Steel Corporation

Frank F. Chiles, formerly manager of sales of the bar division of Corrigan, McKinney Steel Company, has been appointed assistant manager of sales of the bar division, Republic Steel Corporation, with headquarters at Youngstown, Ohio, according to an announcement by N. J. Clarke, vice president in charge of sales for Republic. The appointment is effective immediately.

In his new capacity, Mr. Chiles will assist W. F. Vosmer in supervising the sales of all carbon semi-finished steel bars, shapes and plates produced by Republic.

Caterpillar Tractor Holds Sales College

Two hundred executives and members of the sales department of Caterpillar Tractor Company gathered at Peoria, Illinois, on October 13 for a nine-day sales college. The purpose of the meeting is to know each other, Caterpillar products and their uses and applications.

During 28 field demonstrations the group was divided into small squads so as to give every man the best possible opportunity to study the work and absorb the details. Squads moved from job to job on a fixed schedule and until each had visited all the demonstrations. These required four days.

A four-day indoor meeting that will follow is to include papers carefully selected from a large number written by various Caterpillar individuals. Three evening meetings are scheduled for the display room at the factory. The college is in charge of H. P. Mee, vice-president in charge of sales, E. R. Galvin, eastern sales manager, and H. H. Chambers, western sales manager, assisted by J. D. Fletcher, export sales manager and Paul Weeks, manager of the special sales division.

Jones Salesmen Hold Conference at Tulsa

Executives and sales representatives of The S. M. Jones Company pronounced their annual meeting at Tulsa Tuesday and Wednesday, October 1 and 2, one of their most successful. The sales program for the coming year was discussed and each of the district men presented discussions on various phases of the business. Plans for sales promotion work, engineering cooperation with producers, projects for analyzing wells together with advertising and direct-by-mail plans were discussed. P. C. Jones, president of the company; Paul Jones, vice president; Mason Jones, secretary, and D. R. Dale, chief engineer, were present from the general headquarters. H. K. Browning, sales manager, planned the meeting which had for its theme, "Fitting Sucker Rods to Pumping Conditions."

A. W. Burket Joins Griscom-Russell Company

The Griscom-Russell Company, manufacturers of heat exchange equipment, announces the appointment of A. W. Burket as district manager, located at 20 North Wacker Drive, Chicago, Illinois, from which point he will supervise their direct sales and agency activities in the Chicago, St. Louis, Detroit, Milwaukee and adjacent territories.

Mr. Burket, who until recently has been in business in Tulsa, Oklahoma, is well known in heat exchanger and similar equipment fields.

Carson Machine & Supply Company Enlarging Plant

Carson Machine & Supply Company, Oklahoma City, is doubling the size of its shop. Increased business has prompted the company to enlarge its facilities.

Welding Handbook

The Lincoln Electric Company, Cleveland, Ohio, has announced a new edition of "Procedure Handbook of Arc Welding Design and Practice", a volume considerably larger than the preceding one. The new volume contains 586 pages, is encyclopedic in scope and contents, and is divided into eight principal sections that deal with an important phase of arc welding. The text has more than 700 illustrations. The different parts of the book describe welding methods and equipment; technique of welding; procedures, speeds and costs for welding mild steel; structure and properties of weld metal; weldability of metals; designing for arc-welded steel construction of machinery; designing for arc-welded structures; typical applications of arc welding in manufacturing, construction and maintenance; and advertising section. Copies will be mailed to any address in the United States for $1.50 per copy.

TRU·LAY *Preformed* ROTARY LINES

ONE LARGE PRODUCER*

after having kept accurate records on 98 wells, found that TRU-LAY Preformed Rotary Lines has cut his wire line costs 30 per cent.

**Name on request*

AMERICAN CABLE COMPANY, Inc.
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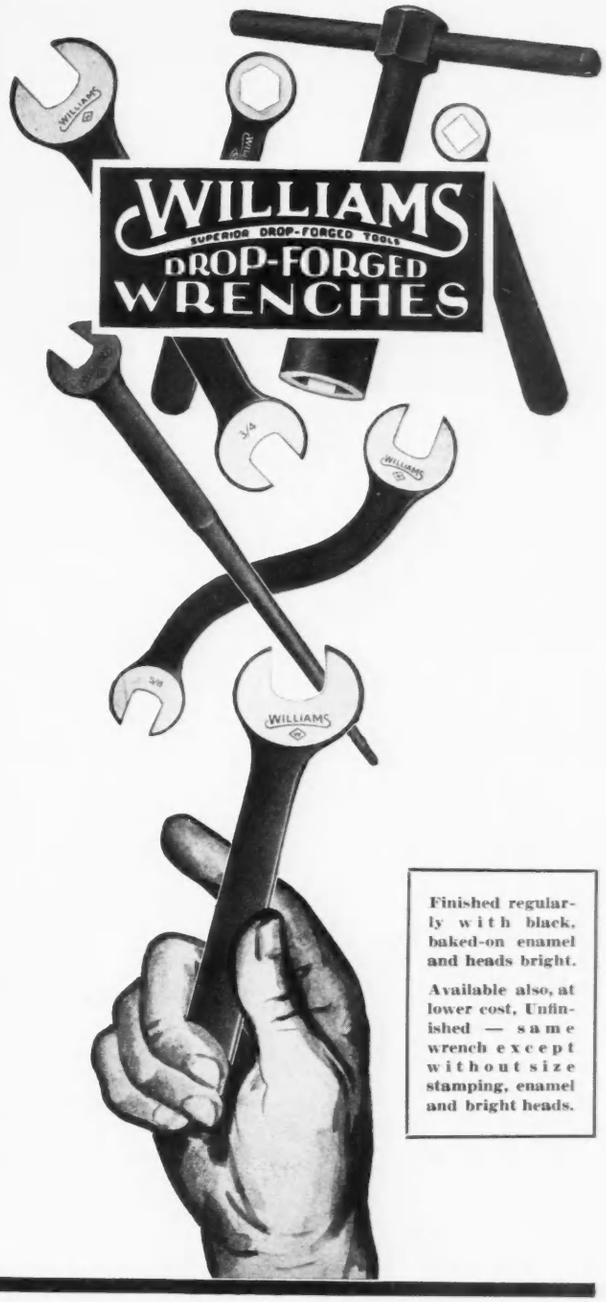

Finished regularly with black, baked-on enamel and heads bright.

Available also, at lower cost, Unfinished — same wrench except without size stamping, enamel and bright heads.

No line of Drop-Forged Wrenches is more complete than Williams'. Fifty patterns in more than a thousand sizes provide the *proper* wrench for every need. Fifty years of wrench-making experience provide the background which makes WILLIAMS the best known name in wrenches.

Williams' Wrenches are available in three types: *Carbon Steel*, described and illustrated above; "*Superrenches*"—light and thin—forged from tough Chrome-Molybdenum steel and finished in chrome-plate; and "*Supersockets*", embodying superior features in detachable socket wrench design. . . . Ask your distributor, or write for illustrated literature.

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"The Drop-Forging People"
75 SPRING STREET NEW YORK CITY
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Squeaks from the Bull Wheel

World's Serious

"Baseball reminds me of the household," he remarked, "there's the plate, the batter, the fowls, the flies, etc."

"And it reminds me of marriage," she retorted. "First the diamond where they are engaged, then the struggles and the hits, then the men going out, and finally the difficulty in getting home."

Wrong Skips

Wife—"I can read you like a book."

Hubby—"Then why don't you? You skip over what you don't like in a book and linger over it in me."

Watch That Guy

"Bill is a man after my own heart."

"Well, watch your step, dearie, that's what I thought he was after too."

A Stewed Confession

"You're drunk again. Couldn't you think of anything better to do than to come home in that condition?"

"Yes, m'dear, but she is outta town to-night."

The Interest Is High

Embarrassed, the suave gentleman on the davenport rubbed his hands and groped for words. "Sonny," he said casually to the kid who stood in front of him, "I-er-suppose you saw your sister and me on the davenport a few minutes ago?"

"Sure," said the kid. "I seen everything."

The gentleman failed at an attempt to wet his lips with a dry tongue. "Here, now, before your sister comes back, here's a dollar. For a dollar you ought to be able to forget all about what you-er-saw. Understand?"

"Sure, I forgot already." He pocketed the bribe with a professional gesture and waited for the gent to make another move.

"And now, my boy, what are you going to do with all that money?" asked the man with the air of one who seeks to work away from a tight predicament.

Momentary chagrin filled the kid's eyes. "Aw, heck," he said, "I don't get all of this. Sis and I are partners and all I get is a percentage."

Encouraging

"Can I get anything to eat in this dump?"

"Yas, sah, you kin."

"Such as what?"

"Such as it is, sah."

Down—Not Out

How did you find your husband when you returned from your vacation?

Oh, I just happened to stumble over him while I was cleaning up the cellar.

Short Short Story

"How is it that you have only written ten lines on 'Milk' and the others have written pages?"

"I wrote on condensed milk."

Some Question

"I'll bet you're good and tired," said the young man as he lifted his new girl out of the car after the party.

"Well, anyway," replied the girl sleepily, "I'm tired."

He Knew the Difference

"I beg your pardon, Miss, but would you care to take a ride?"

"Sir, I'll have you know I'm a lady."

"I know that. If I wanted a man, I'd go home and get my father."

Experience

There was an eminent lawyer in New York, years ago, who was fond of displaying his legal learning, especially to the members of his office staff. He was not too proud to give even the office boy the benefit of his wisdom and his experience.

Someone asked the boy:

"How much does old Robinson pay you?"

The boy said, "Ten thousand dollars a year."

"What, ten thousand a year for an office boy?"

"Yes," said the boy, "Four dollars a week in cash and the rest in legal advice."

Equine Sagacity

"Would you mind walking the other w'y and not passing the 'orse?" said a London cabman with exaggerated politeness to the fat lady who had just paid a minimum fare.

"Why?" she inquired.

"Because, if 'e sees wot 'e's been carryin' for a shilling 'e'll 'ave a fit."

Real Progress

"How far have you and your wife got with your plan to buy a new car?"

"We've got to the point where we don't speak."

Boy Diplomat

Office-boy (nervously)—"Please, sir, I think you're wanted on the 'phone."

Employer—"You think! What's the good of thinking?"

"Well, sir, the voice at the other end said, 'Hello, is that you, you old idiot!'"

'Tempt of Court

A buxom young Negress, in a very short dress, came before a municipal judge. His Honor, having noticed her scanty clothing, suggested she go home and put on some clothes.

"Judge, Ah spects Ah kin dress like Ah wants."

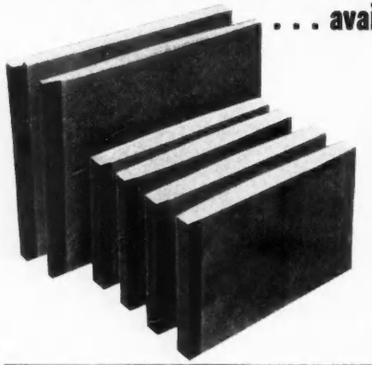
"You are fined $5 for contempt of court.

Going to the clerk to pay the fine, he inquired what it was for.

"The judge says Ah has to pay $5 for 'temptin' de co't.

OIL COMPANY OFFICE and FIELD FORMS

. . . available at mass production prices



After carefully reviewing the forms of a number of oil companies, The Gulf Publishing Company has made up six standard forms listed below and has produced these in such quantities as to enable oil companies to secure them at substantial savings.

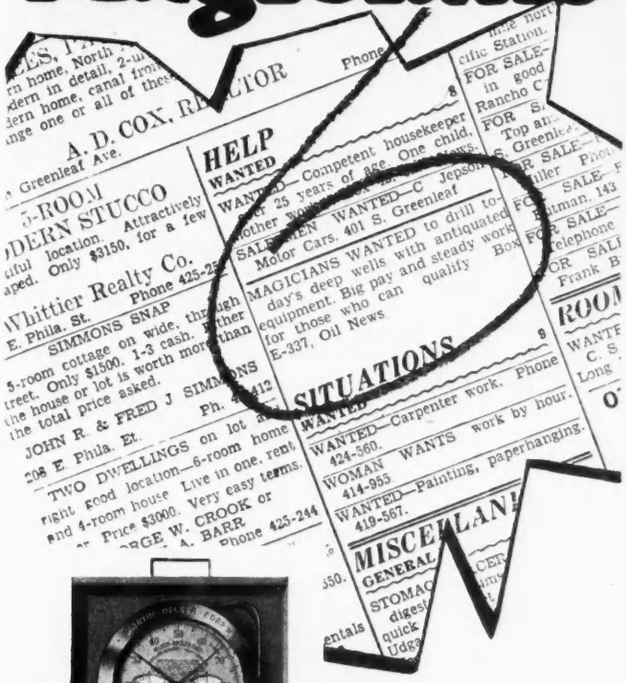
These forms are printed on 16 lb. Bond Paper. They are substantially bound. Duplicates are printed on colored bond and perforated, pencil carbon included with each book.

Forms will be shipped prepaid at prices shown below. Samples will be sent upon request.

Number	Kind of Form	PRICE 1 Book	5 Books	10 Books
Form 100	DAILY DRILLING REPORT—1 Tour (In duplicate—100 sets to the book)	$1.50	$6.50	$10.50
Form 101	DAILY TIME RECORD (In duplicate—100 sets to the book)	1.40	6.00	9.50
Form 102	DAILY GAUGE REPORT (In duplicate—100 sets to the book)	1.40	6.00	9.50
Form 103	WELL LOG AND RELATED DATA (8½x11, Printed both sides—100 to book)	1.50	6.50	10.50
Form 104	PIPE TALLY SHEET (In duplicate—100 sets to the book)	1.50	6.50	10.50
Form 105	MATERIAL TRANSFER RECORD (In duplicate—100 sets to the book)	1.50	6.50	10.50
Form 106	DAILY DRILLING REPORT—3 Tours (In duplicate—100 sets to the book)	1.50	6.50	10.50

GULF PUBLISHING COMPANY, 3301 Buffalo Drive, Houston, Texas

Wanted.. Magicians


HELP WANTED
SITUATIONS WANTED
MISCELLANEOUS
WANTED—Competent housekeeper
MAGICIANS WANTED to drill today's deep wells with antiquated equipment. Big pay and steady work for those who can qualify
E-337, Oil News
WANTED—Carpenter work. Phone 424-360.
WOMAN WANTS work by hour. 414-955
WANTED—Painting, paperhanging. 419-567.
A. D. COX, REALTOR
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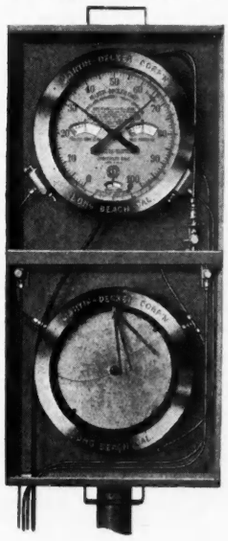
SIMMONS SNAP
JOHN R & FRED J SIMMONS
TWO DWELLINGS on lot
GENERAL



MOST of us are not magicians, consequently we need modern up-to-date equipment to drill today's deep wells. The "Quintuplex" takes all the guess out of drilling. It enables the driller to note every action, every change, every condition as it actually occurs during drilling progress. Call the nearest Martin-Decker representative and have him tell you how easy it is to change over to "Quintuplex" —the modern drilling control instrument.

THE WEIGHT INDICATOR

MARTIN DECKER CORP.

LONG BEACH CALIFORNIA

San Joaquin Valley: A. F. McQUISTON, Oildale, California

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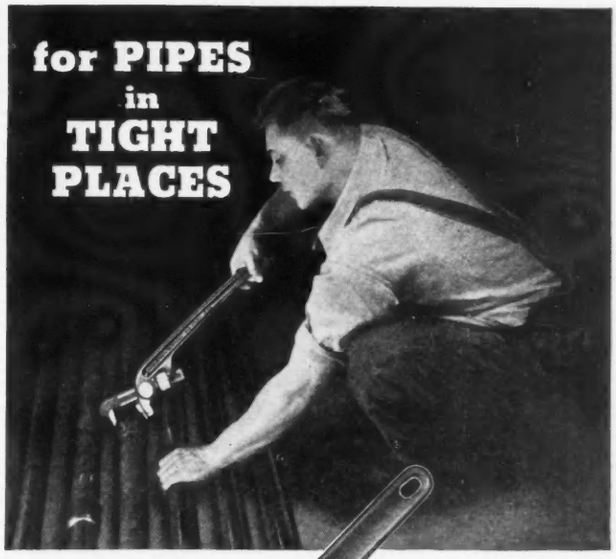

that handy RIDGID END WRENCH

● Pipes in coils, close together, against floor, walls or ceiling—the only tool we know that screws or unscrews 'em easily is the RIDGID End Wrench.

It's a brother to the regular RIDGID made to give you grip and leverage on pipes in tight places. It'll save you skinned knuckles and a bad temper and valuable time. Every kit needs this handy wrench—sizes 6" to 36".

It has all the RIDGID features, besides —unbreakable housing, adjusting nut that spins easily in all sizes, handy pipe scale. Jaws of chrome molybdenum nickel steel, handle and housing of Super-X alloy metal.

The RIDGID Straight Wrench is a brute for heavy pipe work of all kinds. It's made in 9 sizes, from 6" to 60".

Try these handy RIDGID Wrenches at your Supply Store.

THE RIDGE TOOL CO. Elyria, Ohio, U.S.A.

RIDGID

PIPE WRENCHES • CUTTERS • THREADERS • VISES

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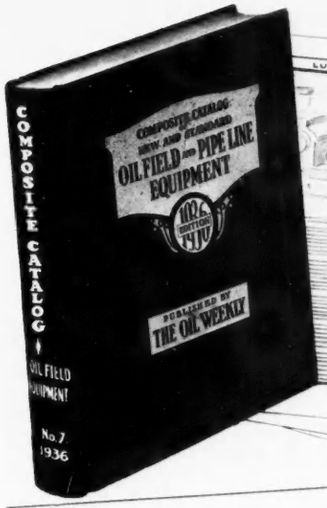
EXECUTIVES ENGINEERS FIELD SUPT'S.



LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

LUFKIN TWIN CRANK UNITS
Table of Specifications

Lufkin Gear Ratings Are Based on Wear.

Lufkin Gear Ratings Are Based on Wear Insuring 5 to 10 Years Service Without Appreciable Loss in Efficiency.

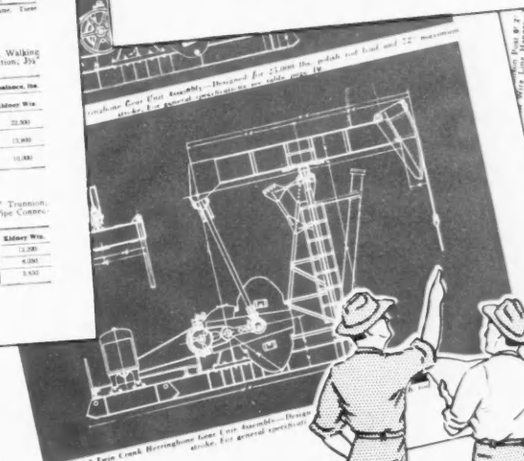
TC-1—NO. 1 TWIN CRANK ASSEMBLY—(See Page 20, Fig. 27)
Designed for 25,000 lbs. Polish Rod Load and 72" Maximum Stroke

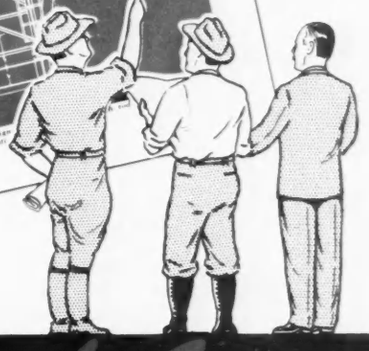
TC-2—NO. 2 TWIN CRANK ASSEMBLY—(See Page 20, Fig. 28)
Designed for 20,000 lbs. Polish Rod Load and 56" Maximum Stroke

TC-3—NO. 3 TWIN CRANK ASSEMBLY—(See Page 21, Fig. 29)
Designed for 17,000 lbs. Polish Rod Load and 48.8" Maximum Stroke.

TC-4-11 TWIN CRANK ASSEMBLY—(See Page 21, Fig. 30)
Designed for 12,000 lbs. Polish Rod Load and 42" Maximum Stroke.

Lufkin No. 5B Herringbone Gear Single Crank Unit with "Back-side" crank arrangement for pumping one or two extra wells. Note also Lufkin underdrive take-off. The brass assemble is the Lufkin Center-line type—all working points in line and all bearings bronze bushed and either oil bath or Alemite lubricated, assuring positive oiling and long wearing qualities.


Lufkin No. 2 Twin Crank Herringbone Gear Unit Assembly—Design similar, but general specifications



Illustrations Engineering Data Specifications

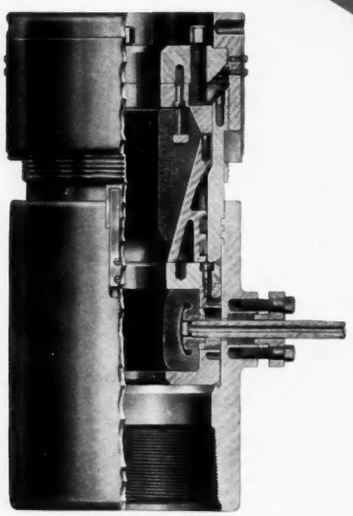
Executives, Engineers and Field Superintendents will appreciate the helpful information presented by **Lufkin** in the Composite Catalog of Oil Field and Pipe Line Equipment.

Lufkin

LUFKIN FOUNDRY & MACHINE COMPANY » LUFKIN, TEXAS
Branches in » Houston, Dallas, Henderson, Tulsa, Los Angeles, New York

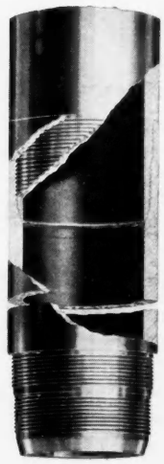
Install HYDRIL Controlled Pressure DRILLING EQUIPMENT Before YOU REACH THE PRESSURE ZONE

HYDRIL ROTARY
equipped for chain drive from any conventional draw works. Quickly installed in place of flat rotary. (Patented.)



COMBINATION DRILLING PACKER
seals the hole against any pressure during all drilling and casing operations. (Patented.)

EXTERNAL FLUSH JOINT DRILL PIPE
passes easily through the packer while a perfect seal is constantly maintained between drill pipe and casing. (Patented.)



EXTERNAL AND INTERNAL FLUSH JOINT CASING
is run through packers against high pressure with speed and safety. (Patented.)

HYDRIL CONTROLLED PRESSURE DRILLING EQUIPMENT operates successfully in areas where extreme pressures, heaving and caving formations or excessive water flow make exploration with ordinary drilling methods difficult or impossible. Through its use the weight of the column of drilling fluid in subnormal as well as abnormal pressured wells can be reduced, in order that they may produce oil while being drilled, thus insuring that they will not be injured or closed off through penetration by water or mud. Let us send you a detailed study of how this equipment is installed and operated. See the Hydril Section in your 1935 Composite Catalog. It begins on page 471.

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